

THE ARCHITECTS' JOURNAL



standard contents

every issue does not necessarily contain
all these contents, but they are
the regular features which
continually recur

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CURRENT BUILDING

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Details of Planning, Construction,

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Wanted and Vacant

No. 3361]

[Vol. 130

THE ARCHITECTURAL PRESS

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Registered as a Newspaper.

★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to I one week, I to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

ILA	Institute of Landscape Architects. 1, Park Crescent, Portland Place, W.1. Museum 3473
I of Arb	Institute of Arbitrators. Hastings House, 10, Norfolk Street, Strand, W.C.2. Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1. Museum 7197
IQS	Institute of Quantity Surveyors. 98, Gloucester Place, W.1. Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3. Avenue 6851
IRA	Institute of Registered Architects. 68, Gloucester Place, W.1. Welbeck 9966
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1. Sloane 7128
JFRO	Joint Fire Research Organisation (DSIR & Fire Offices' Committee). Fire Research Station, Boreham Wood, Herts. Elstree 1341/1797
LDA	Lead Development Association. 18, Adam Street, W.C.2. Whitehall 4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1. Museum 3891
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1. Trafalgar 7711
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1. Hyde Park 7070
MOH	Ministry of Health. 23, Savile Row, W.1. Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1. Whitehall 4300
MOLNS	Ministry of Labour and National Service, 8, St. James's Square, S.W.1. Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, W.C.2. Gerrard 6933
MOT	Ministry of Transport, Berkeley Square House, Berkeley Square, W.1. Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1. Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 94/98, Petty France, S.W.1. Abbey 1010
NAS	National Association of Shopfitters. 2, Caxton St., S.W.1. Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1. Welbeck 0619
NCBMP	National Council of Building Material Producers, 10, Storey's Gate, S.W.1. Abbey 5111
NEFMAI	National Employers Federation of the Mastic Asphalte Industry. 21, John Adam Street, Adelphi, W.C.2. Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1. Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4. Macaulay 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1. Whitehall 1693
NHBRC	National House Builders Registration Council. 58, Portland Place, W.1. Langham 0064/5
NPL	National Physical Laboratory. Head Office, Teddington. Molesey 1380
NRLB	Natural Rubber Development Board. Market Buildings, Mark Lane, E.C.3. Mansion House 9383
NSAS	National Smoke Abatement Society. Palace Chambers, Bridge Street, S.W.1. Trafalgar 6838
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1. Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1. Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1. Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh. Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1. Langham 5533
RICS	Royal Institution of Chartered Surveyors. 12, Great George Street, S.W.1. Whitehall 5322/9245
RFAC	Royal Fine Art Commission. 5, Old Palace Yard, S.W.1. Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1. Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2. Trafalgar 2366
RSH	Royal Society of Health. 90, Buckingham Palace Road, S.W.1. Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19. Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1. Victoria 2186
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1. Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, E.C.3. Mansion House 3921
SIA	Society of Industrial Artists. 7, Woburn Square, W.C.1. Langham 1984/5
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1. Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1. Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2. Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4. City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1. Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4. City 5040
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1. Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1. Grosvenor 6636

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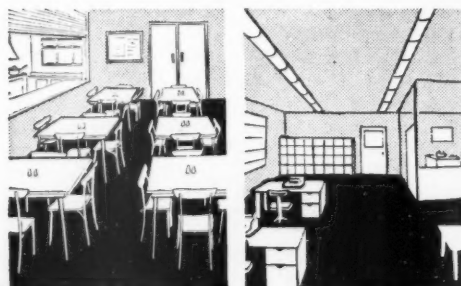
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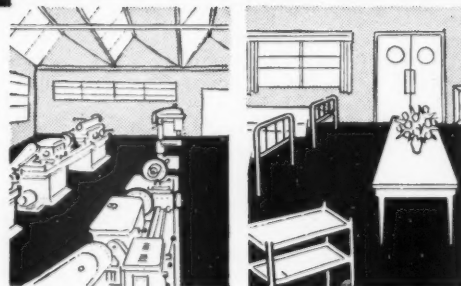
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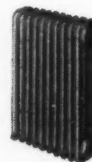
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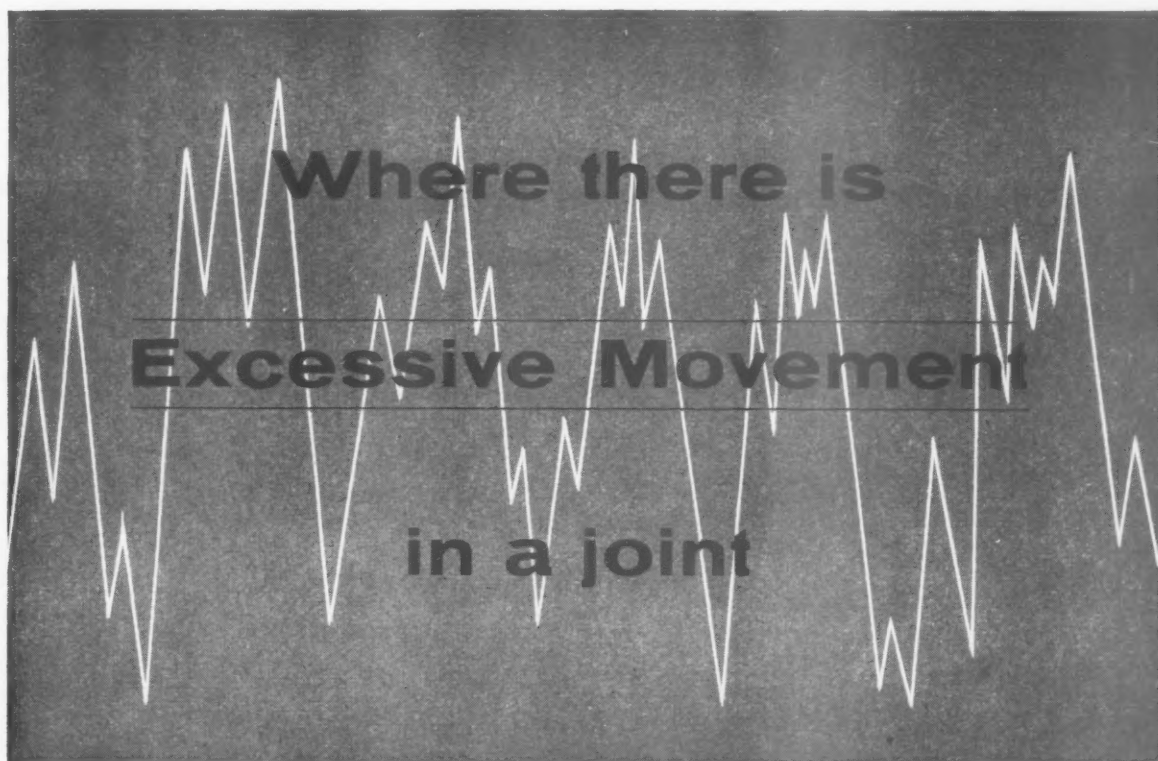


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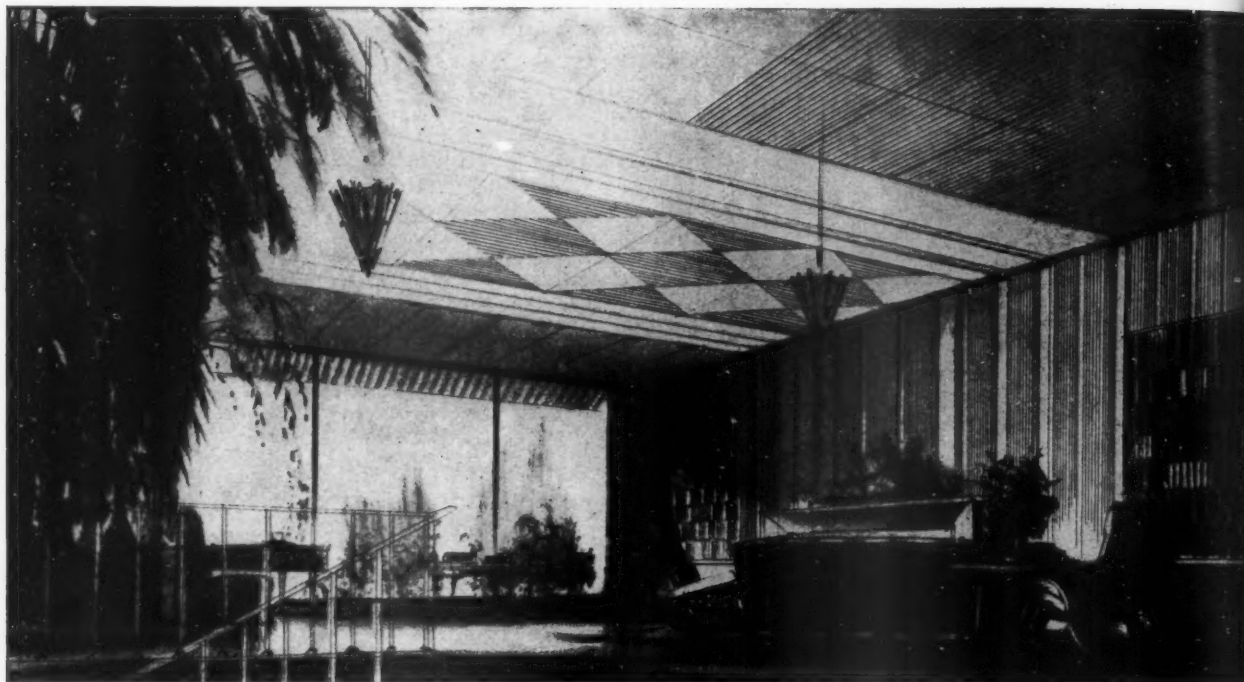
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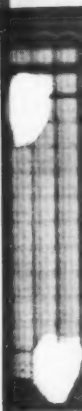
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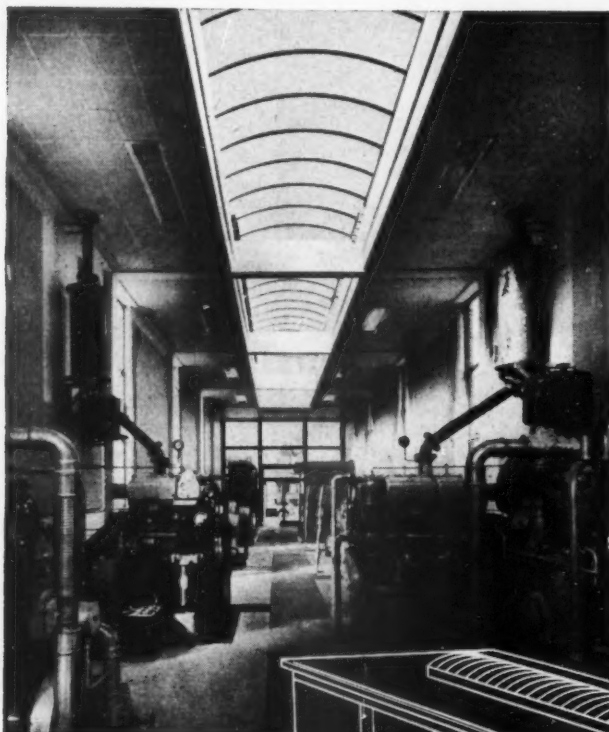


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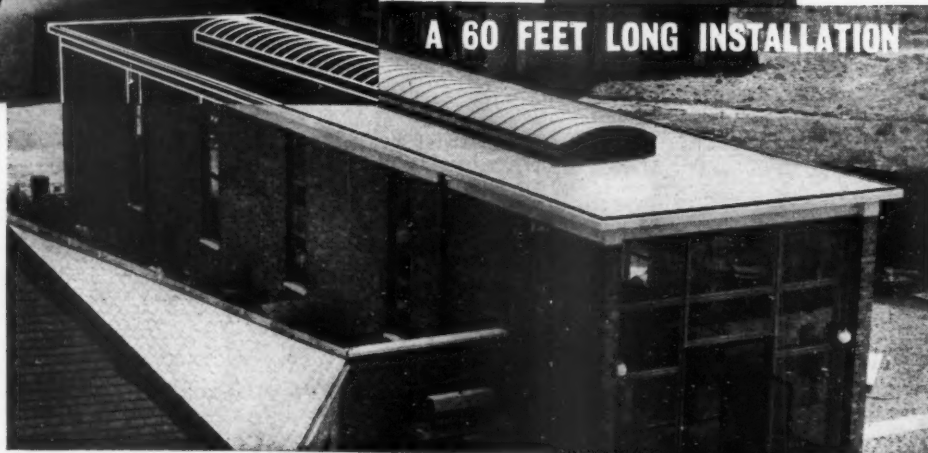
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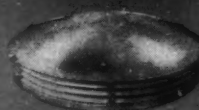
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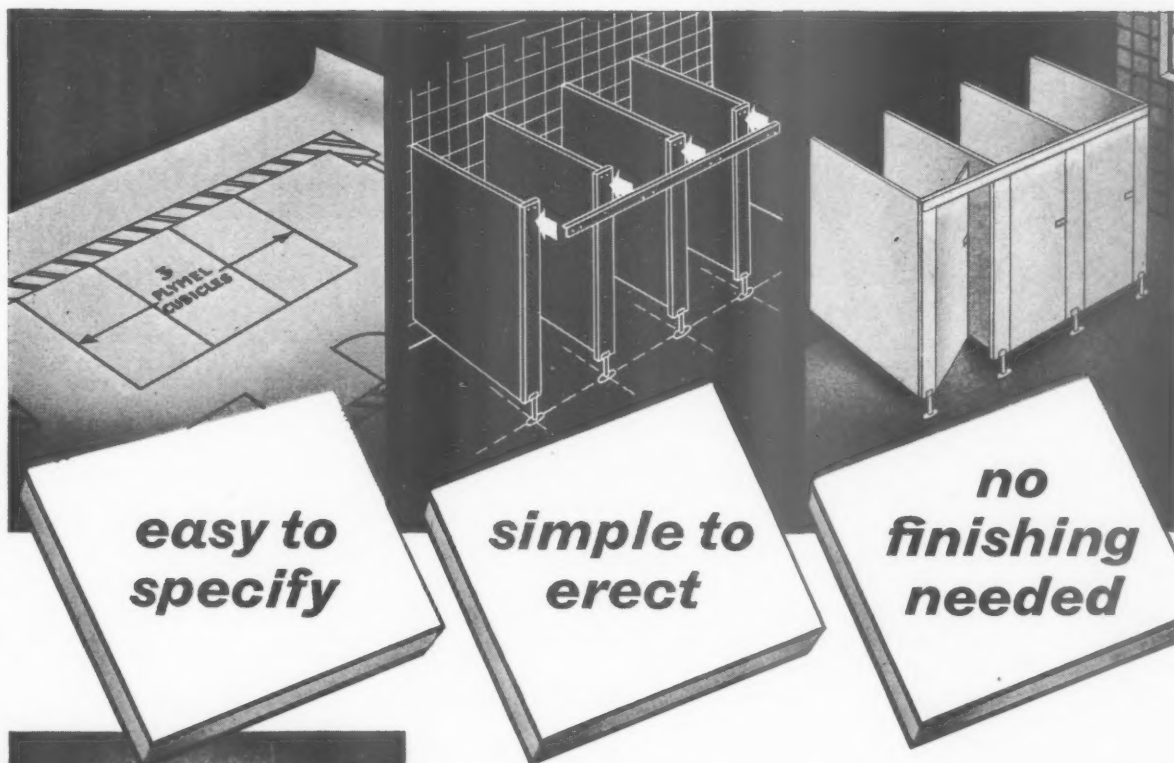
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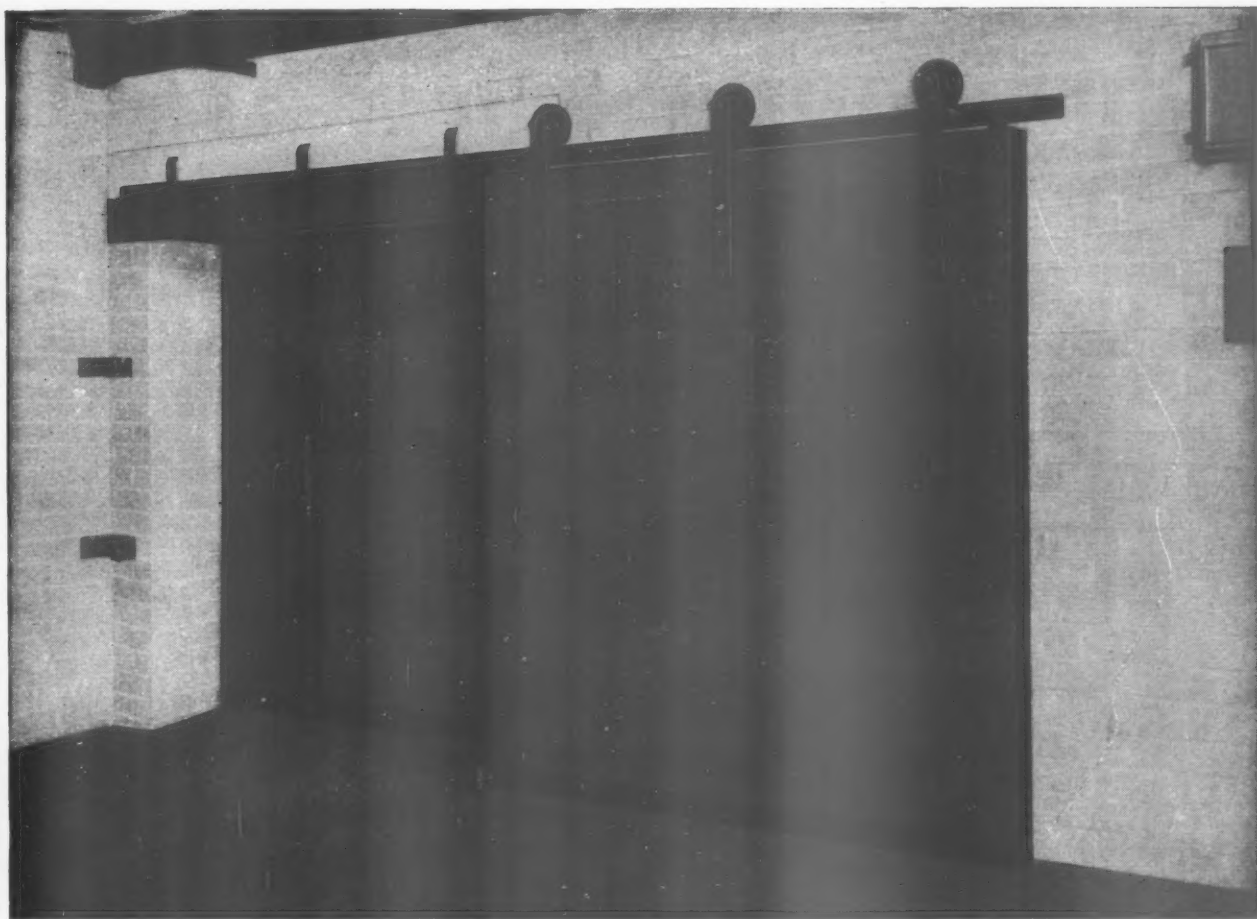
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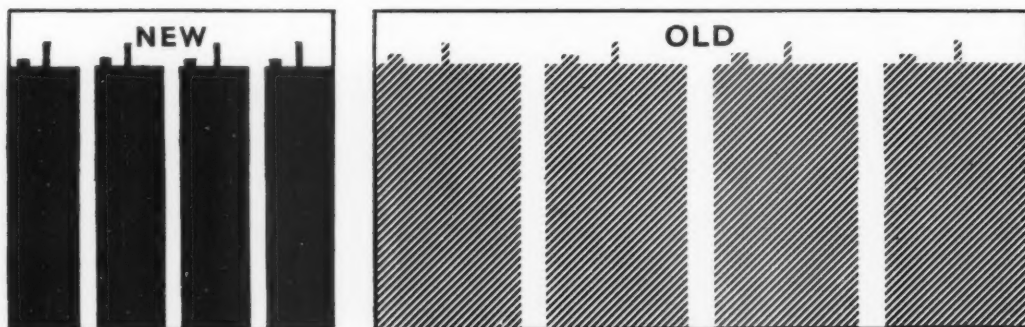
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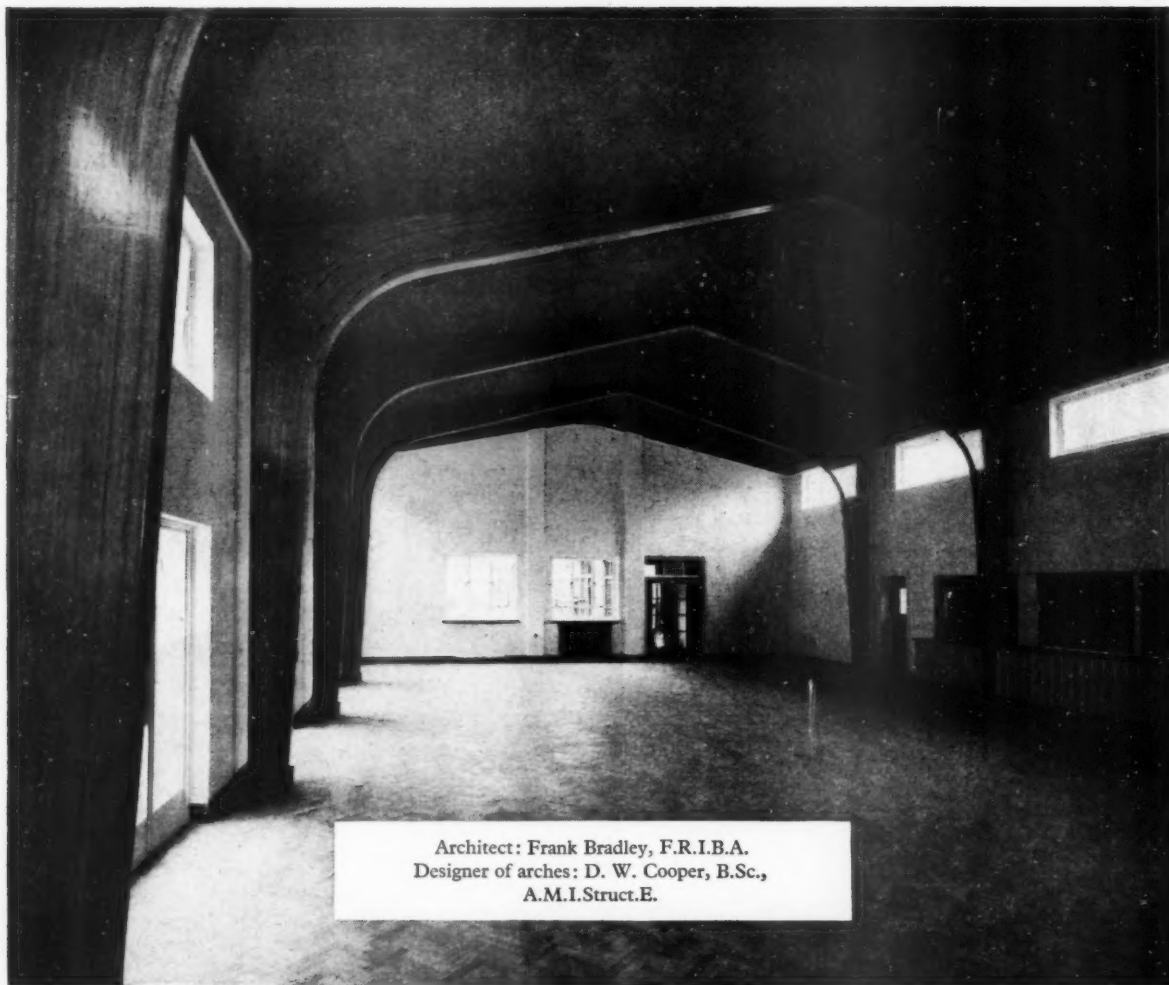


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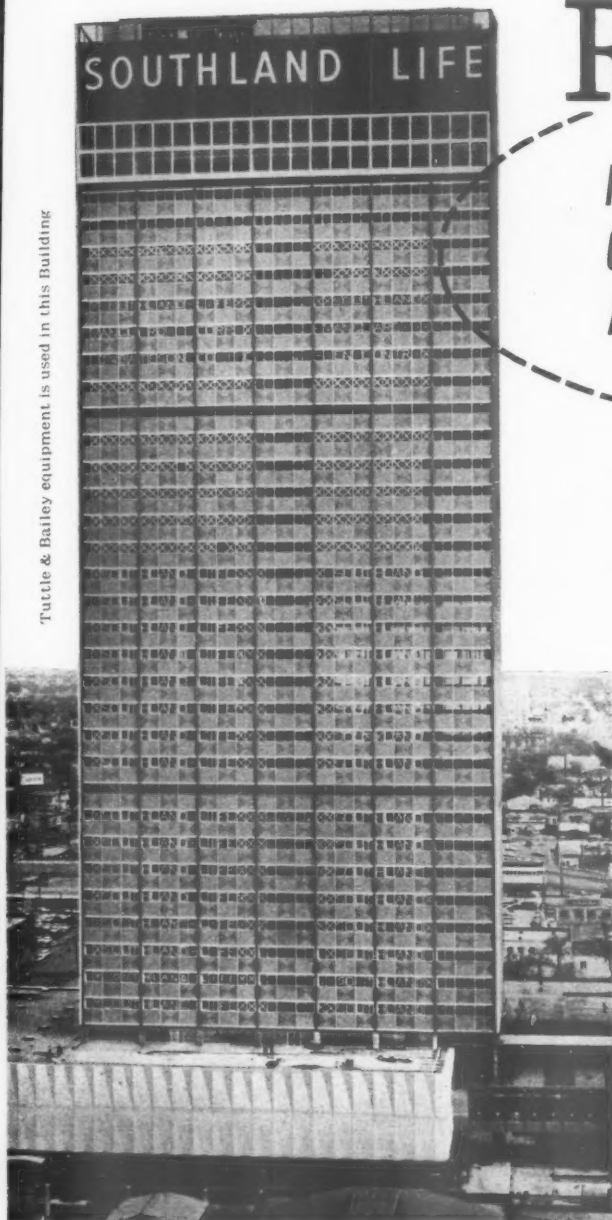
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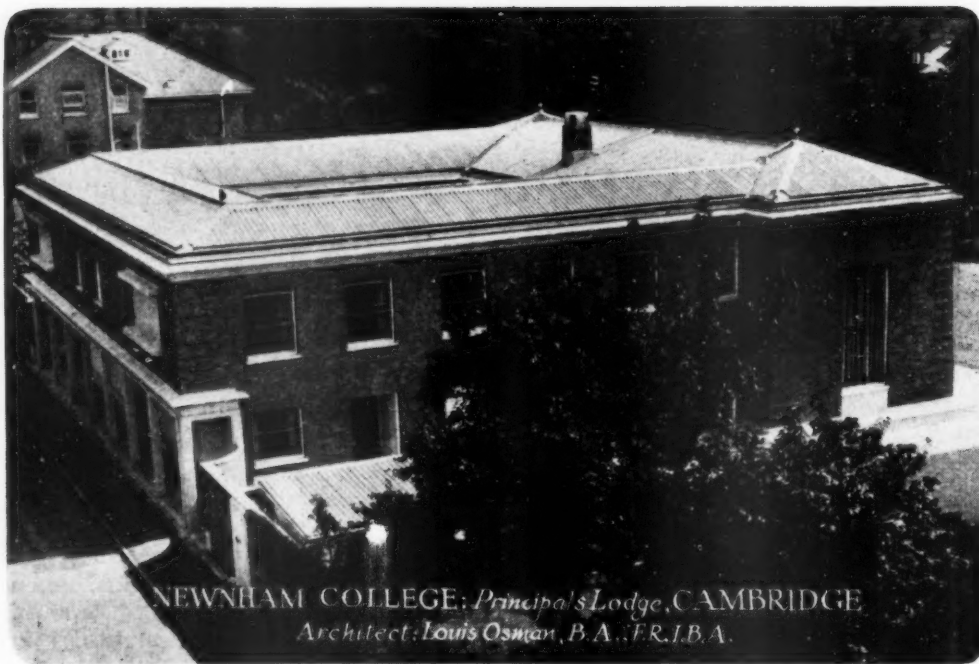
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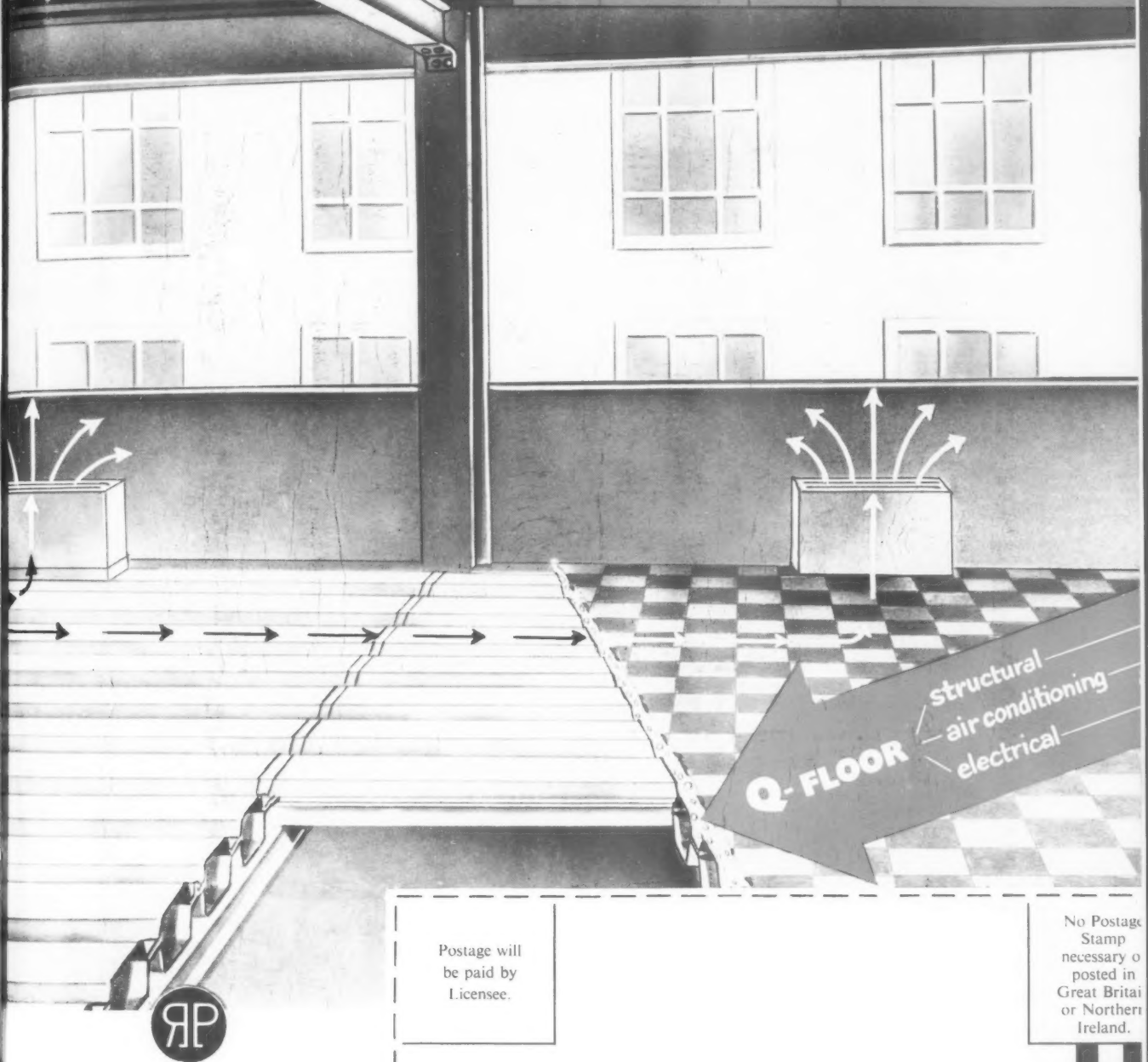
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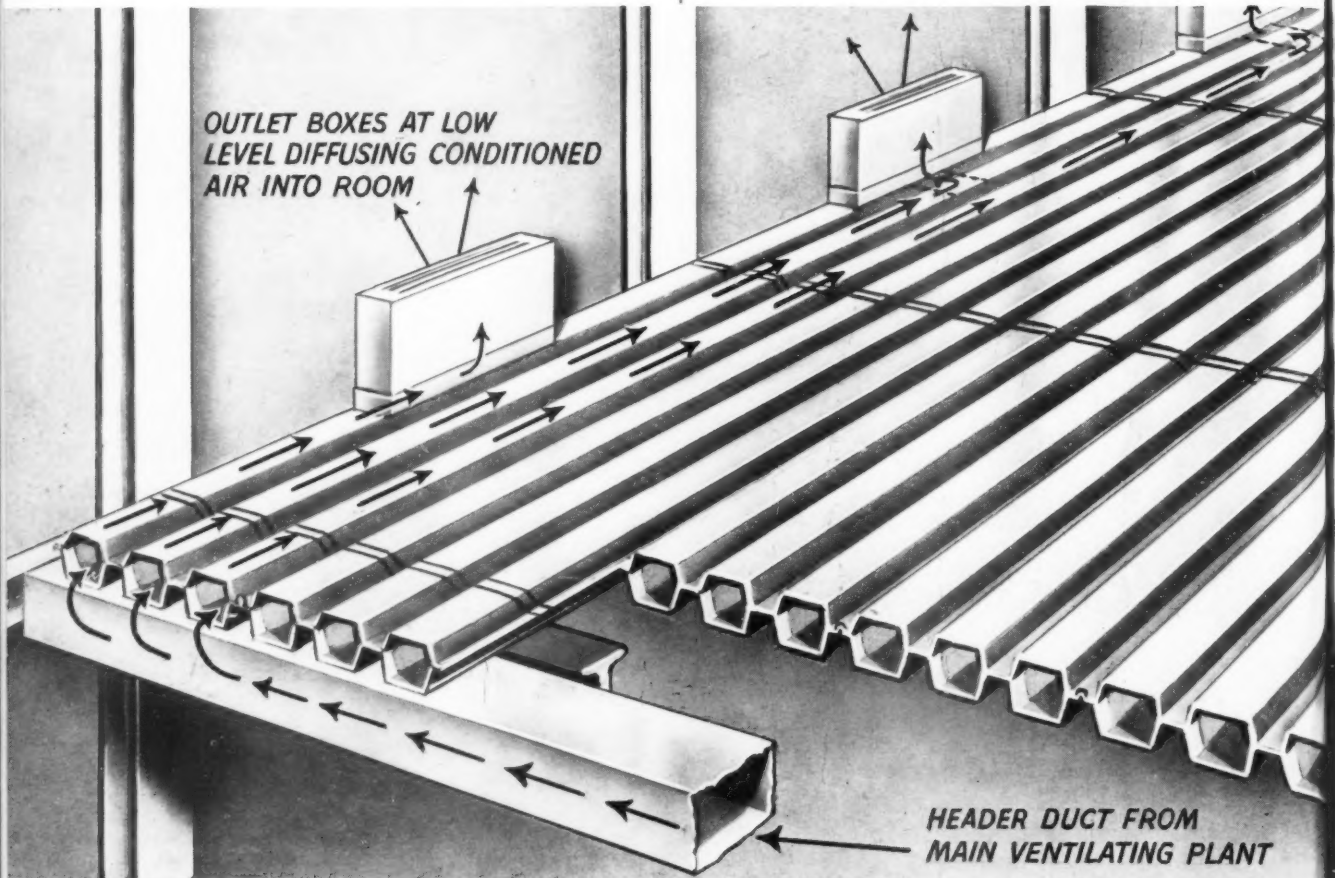
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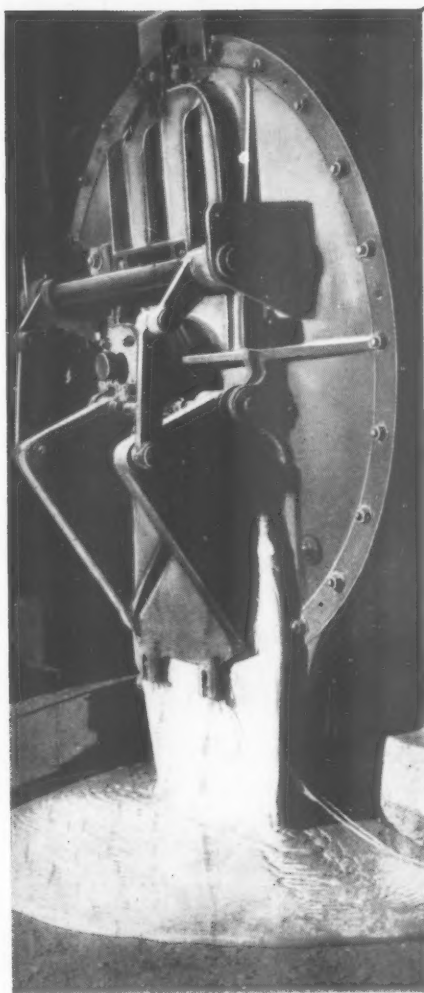
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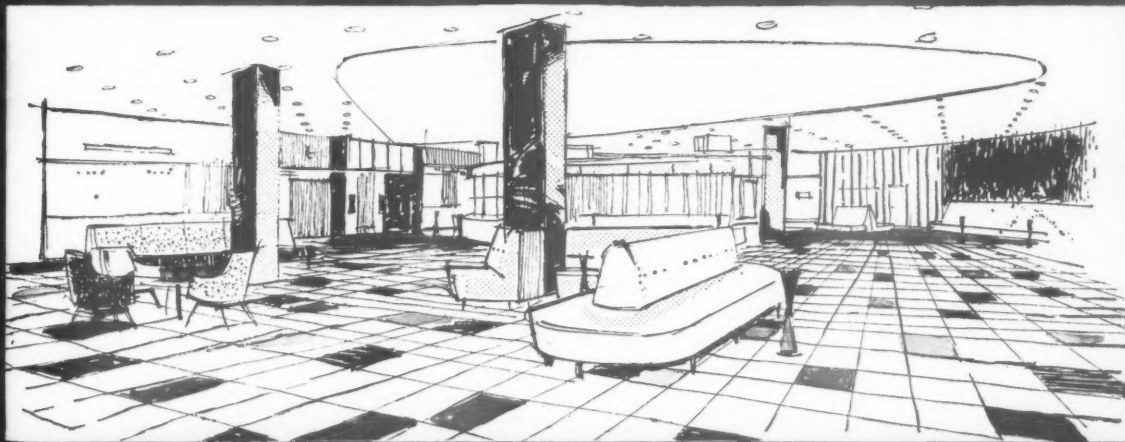


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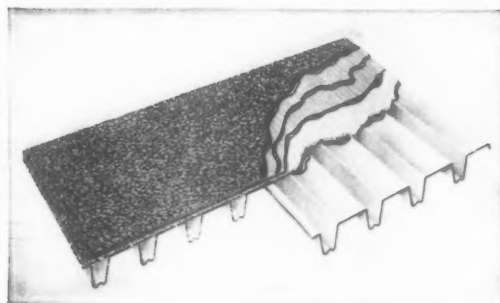


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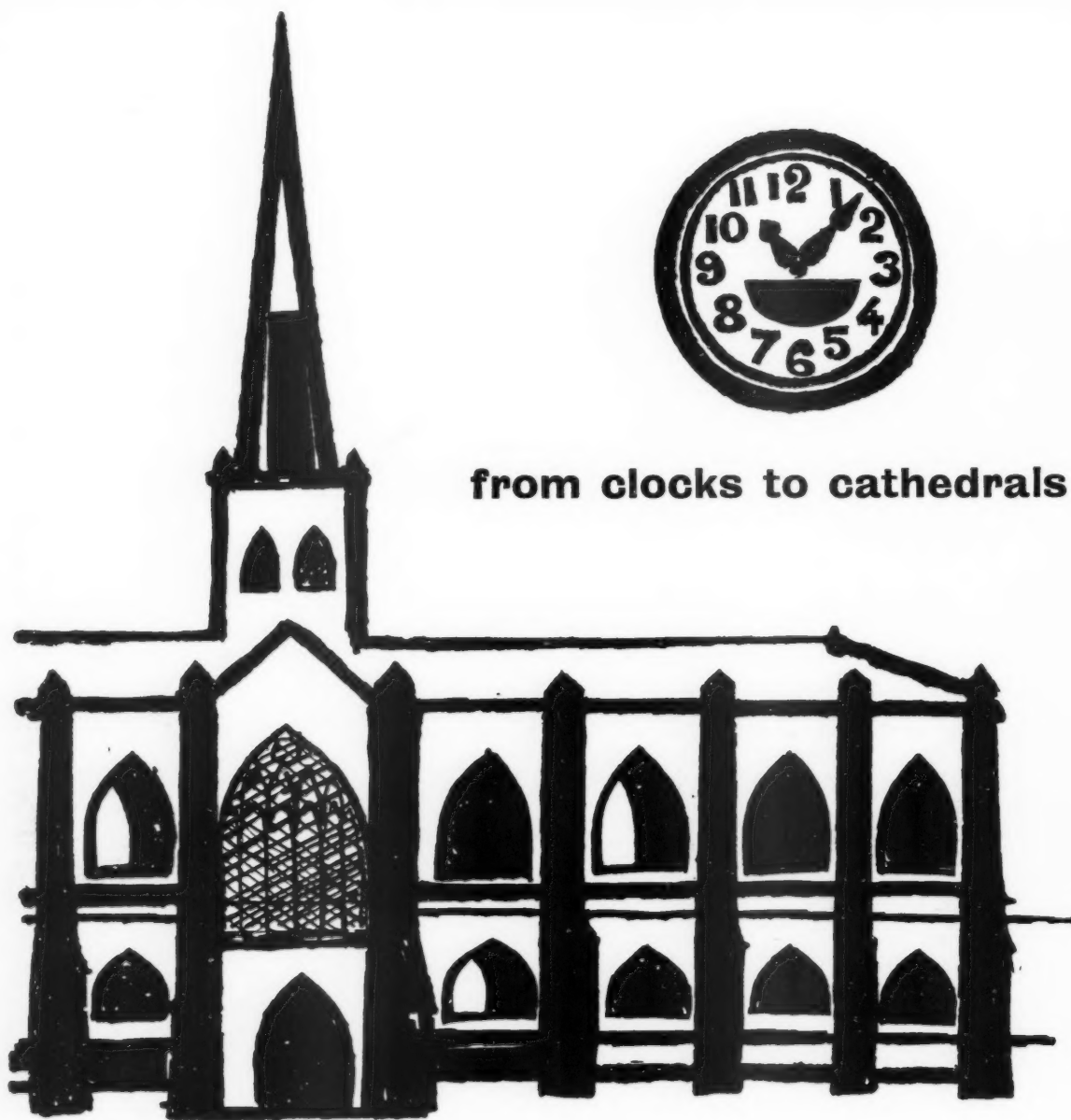
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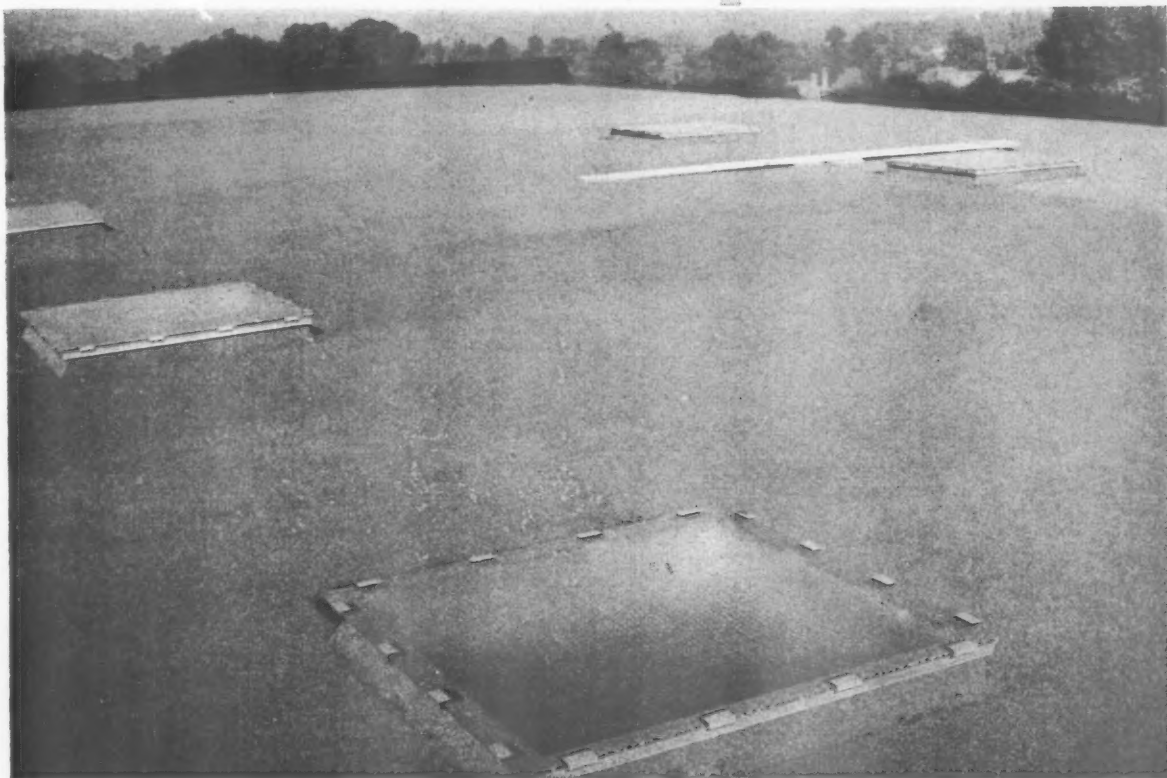
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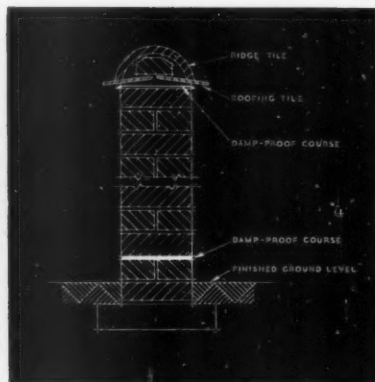
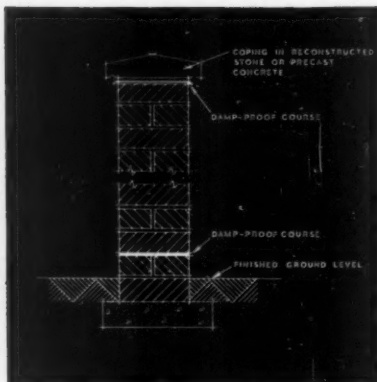
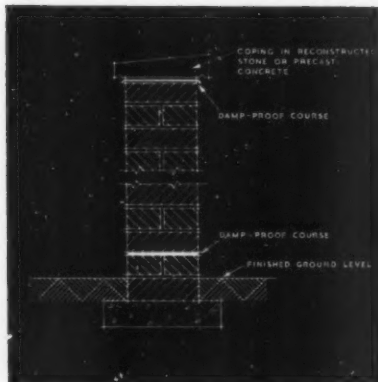
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The top of a free-standing wall, such as a garden wall, is exposed to very severe weathering conditions. 'Phorpres' Fletton bricks are not suitable for this position.

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THREE ALTERNATIVE DESIGNS



...AND SIX IMPORTANT DETAILS

- The coping units should have a high frost resistance. Dense concrete or reconstructed stone are suitable.
- The coping units should be properly 'weathered' and should be provided with drip channels on both sides of the wall to shed the water clear of the wall faces.
- The drip channels must have sharp edges and be free from mortar or other obstructions. This is most important at joints between the coping units.
- However impervious the coping units may be, the

joints between them will not be impervious to the passage of moisture. Hence a damp-proof course should be provided immediately below the coping units.

- To reduce efflorescence to a minimum a damp-proof course should be provided immediately above ground level.
- A mortar mix of 1 part Portland Cement to 1 part Hydrated lime to 6 parts of sand (all by volume) should be used.

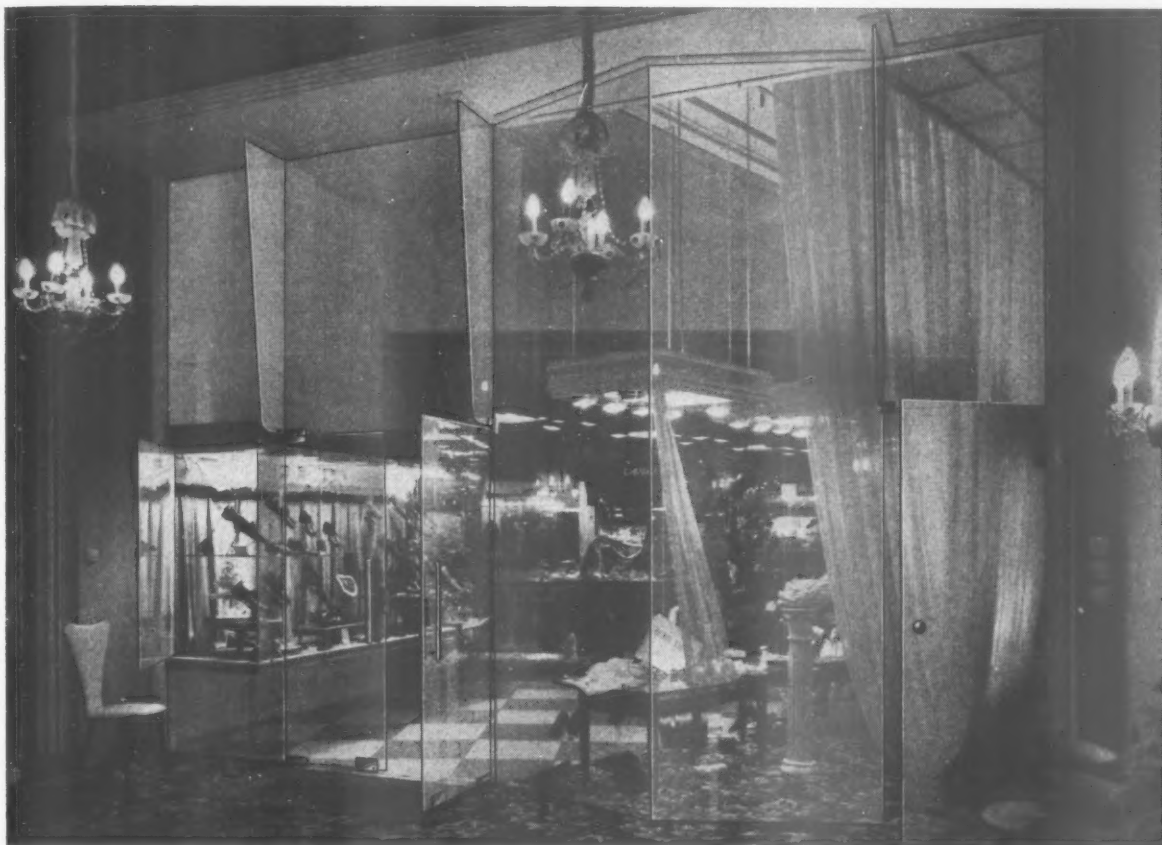


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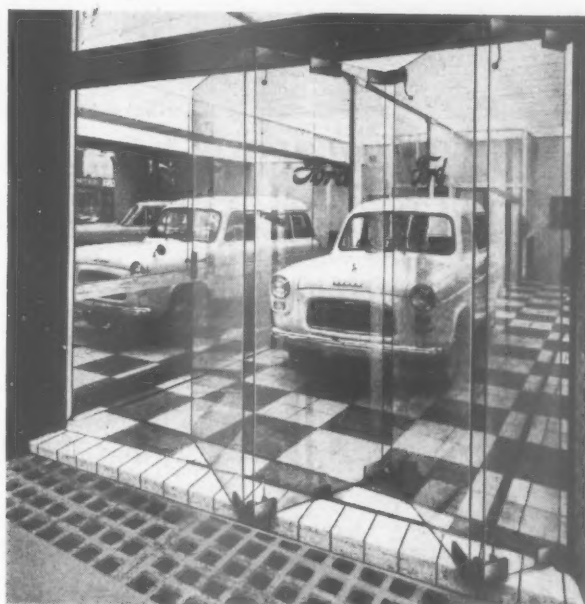


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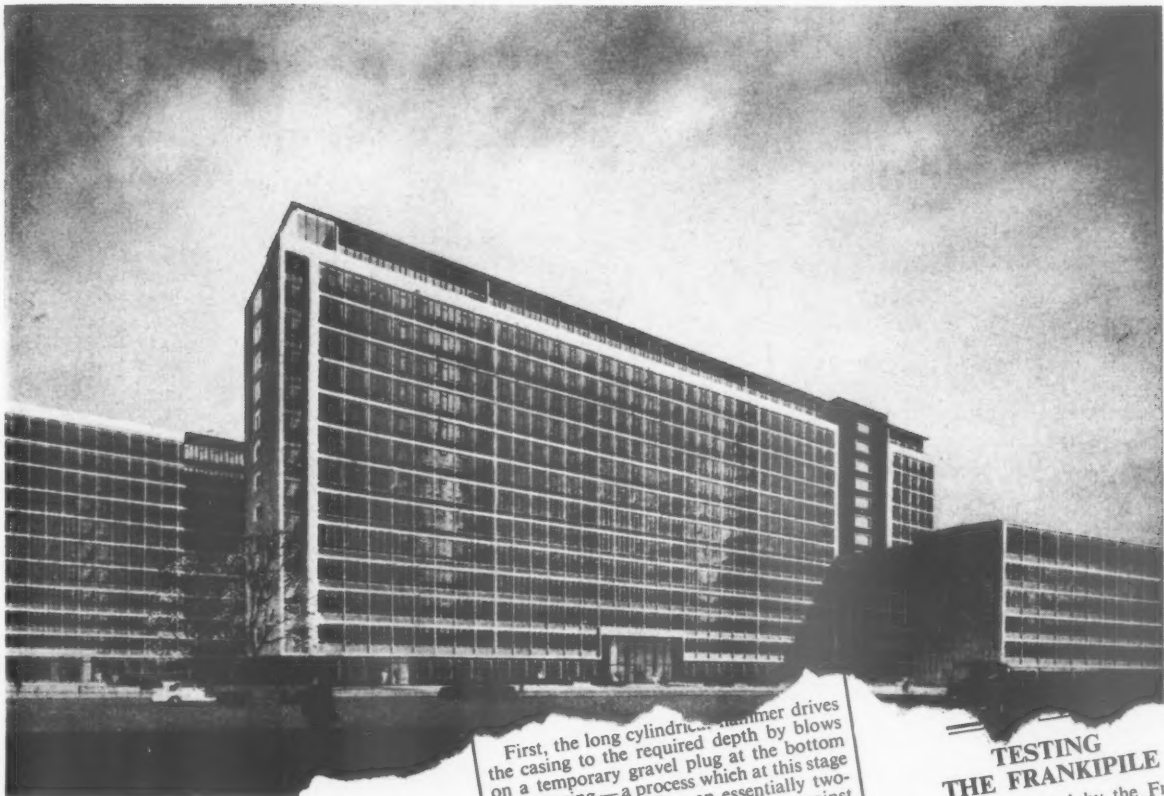
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The shaft of the pile is built up by placing successive charges of the semi-dry concrete mix into the tube and ramming each charge. The tube is gradually withdrawn by means of cables attached to the lugs at its top. This dual action forces the concrete into the subsoil as it is forced from the tube.

ARCHITECT
Morris de Metz, F.R.I.B.A.

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FRANKIPILE

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LATE NEWS ST. CHRISTOPHER HOUSE SOUTHWARK STREET

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These methods are the dead load, which the weight is provided by increments of kentledge bearing on the pile cap, and two types of the first of these types the weight of kentledge is gradually transferred on to the pile by means of the second, the jack operating against the kentledge but against the u from adjacent piles.

These methods can be relied upon to give equally accurate results, the latter being generally depending on the type of kentledge and the type of pile.

Whichever method is used, the pile is taken at agreed stages during incremental loading until it reaches the full test load. The pile is allowed to remain on the test load for a period, which is normally 10 minutes.

After the recording of the load which may have occurred during the test, the load is gradually reduced to the working load in the way as when the load is increased.

When the pile is complete, a final reading is taken. This and the reading of the load is recorded as the permanent load. Piles are normally tested in groups.

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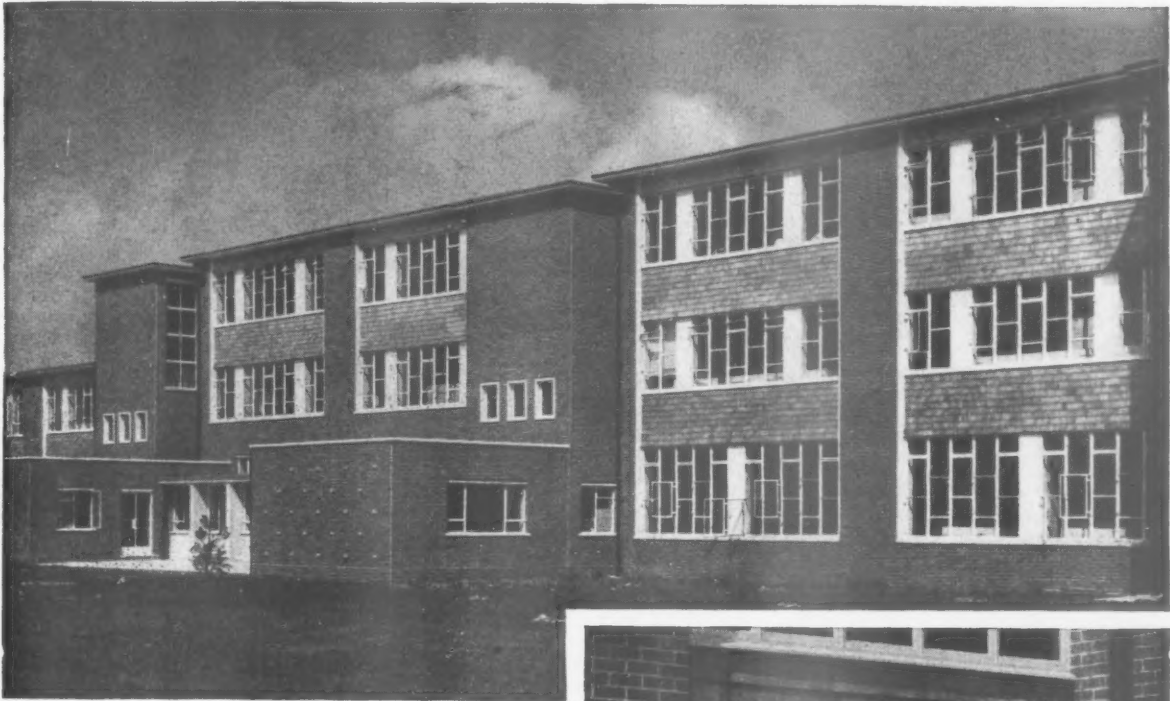
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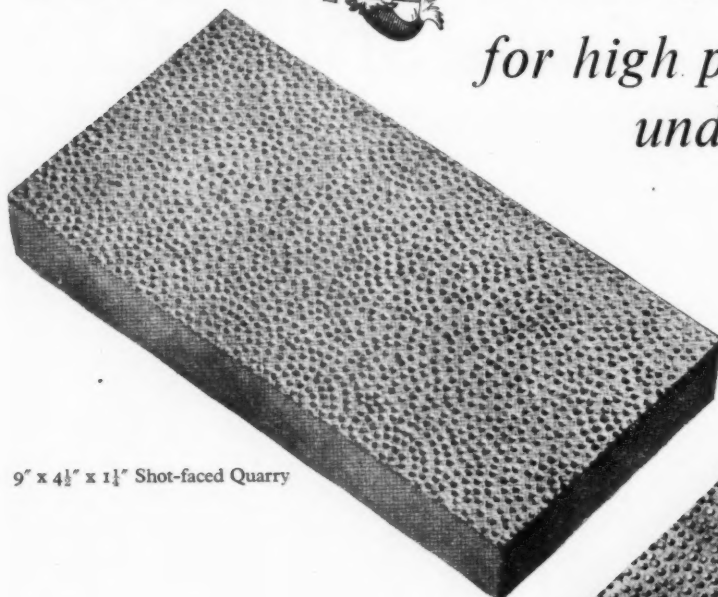
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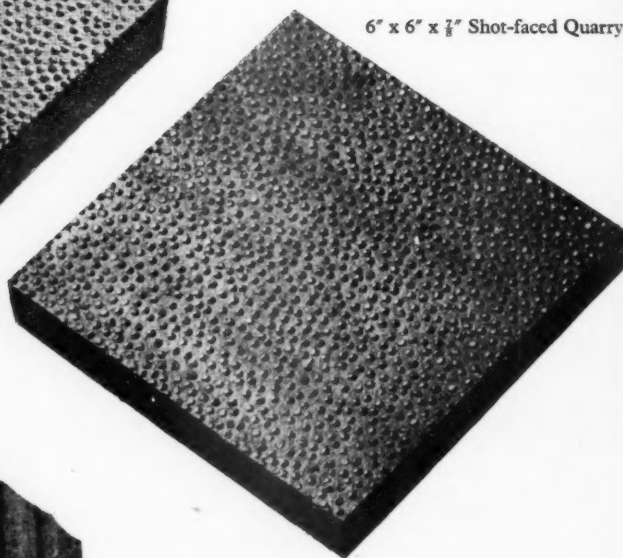
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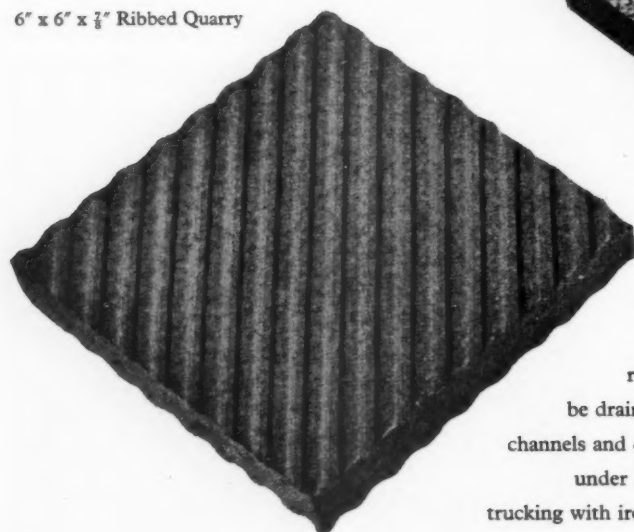
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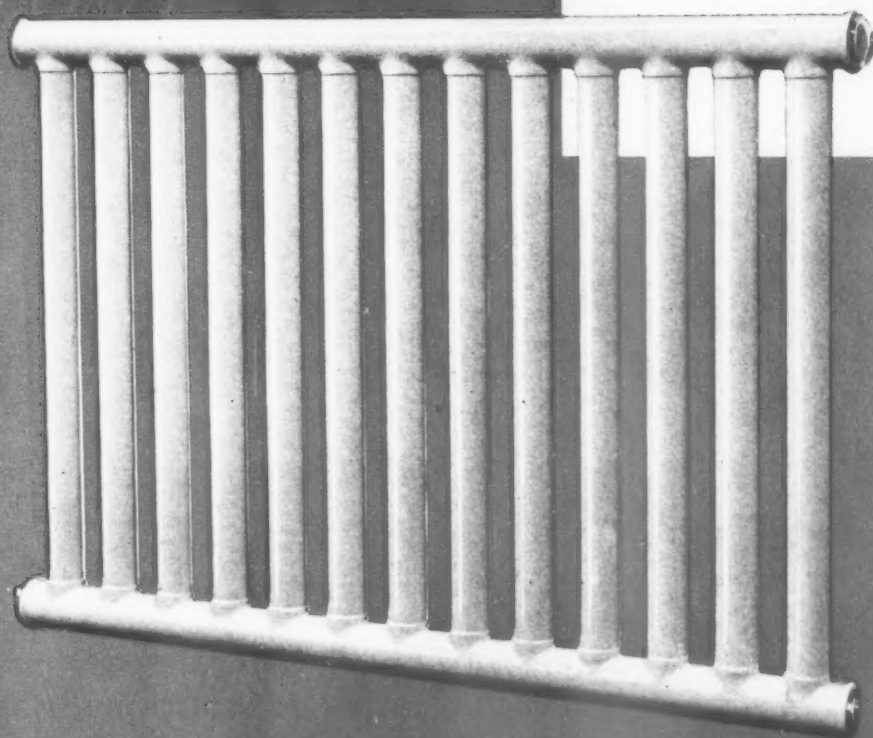
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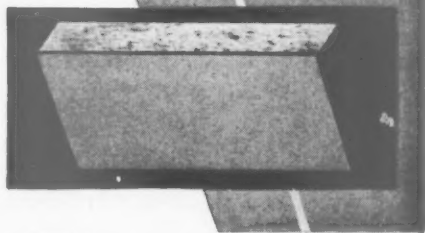
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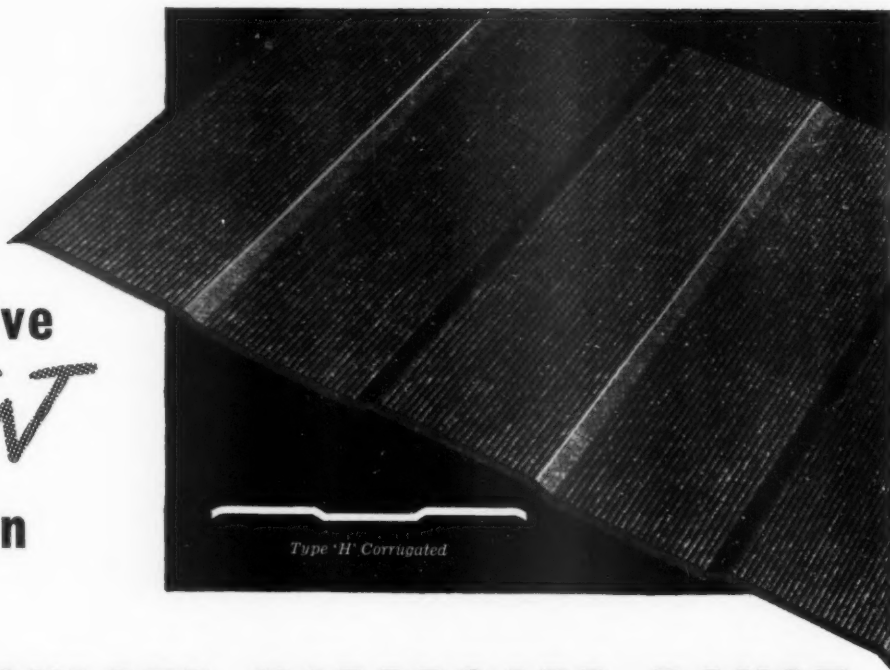
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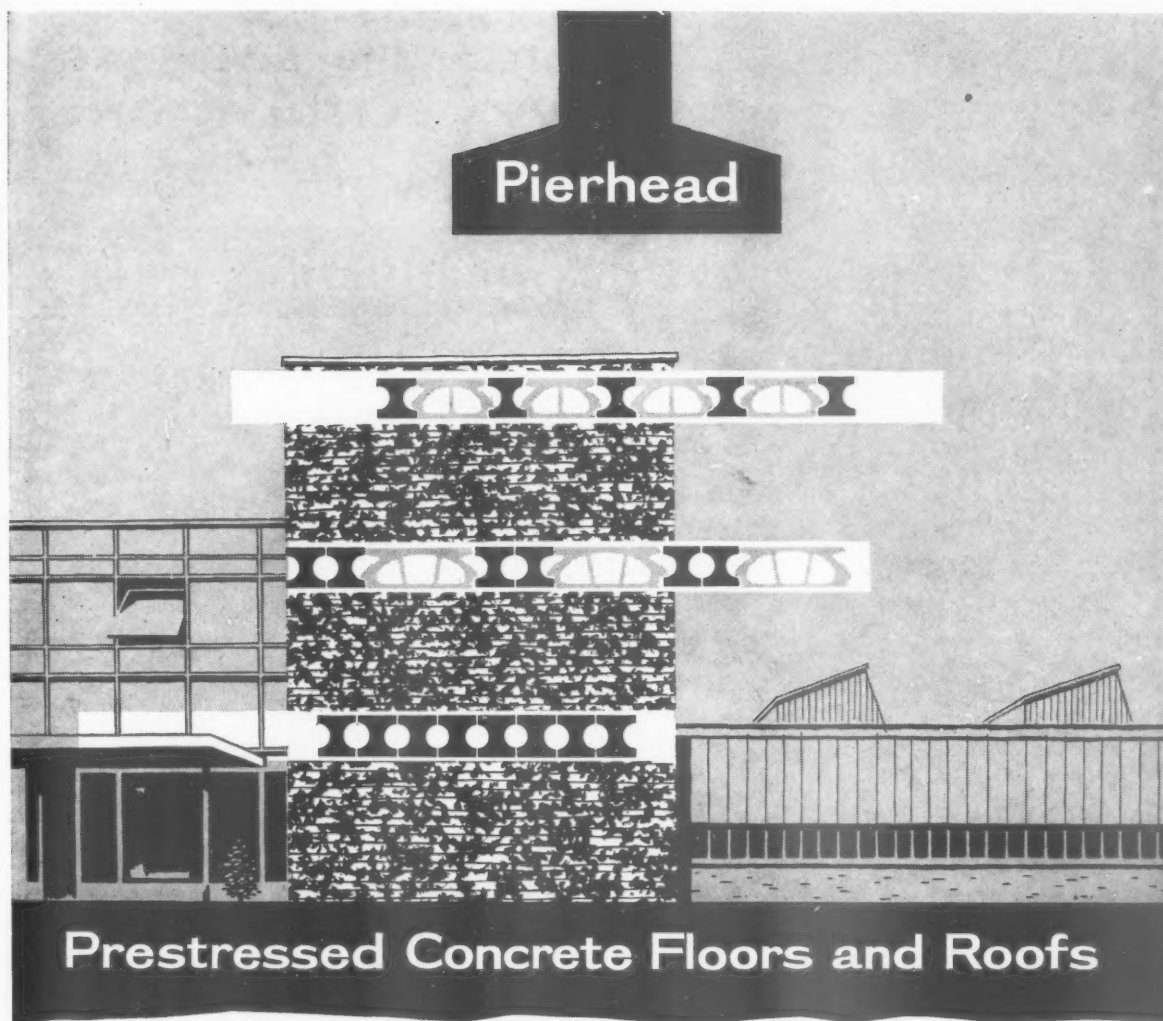
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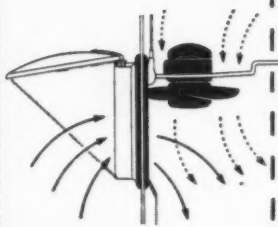
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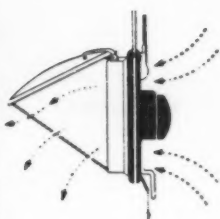
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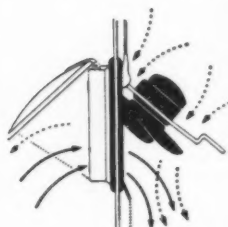
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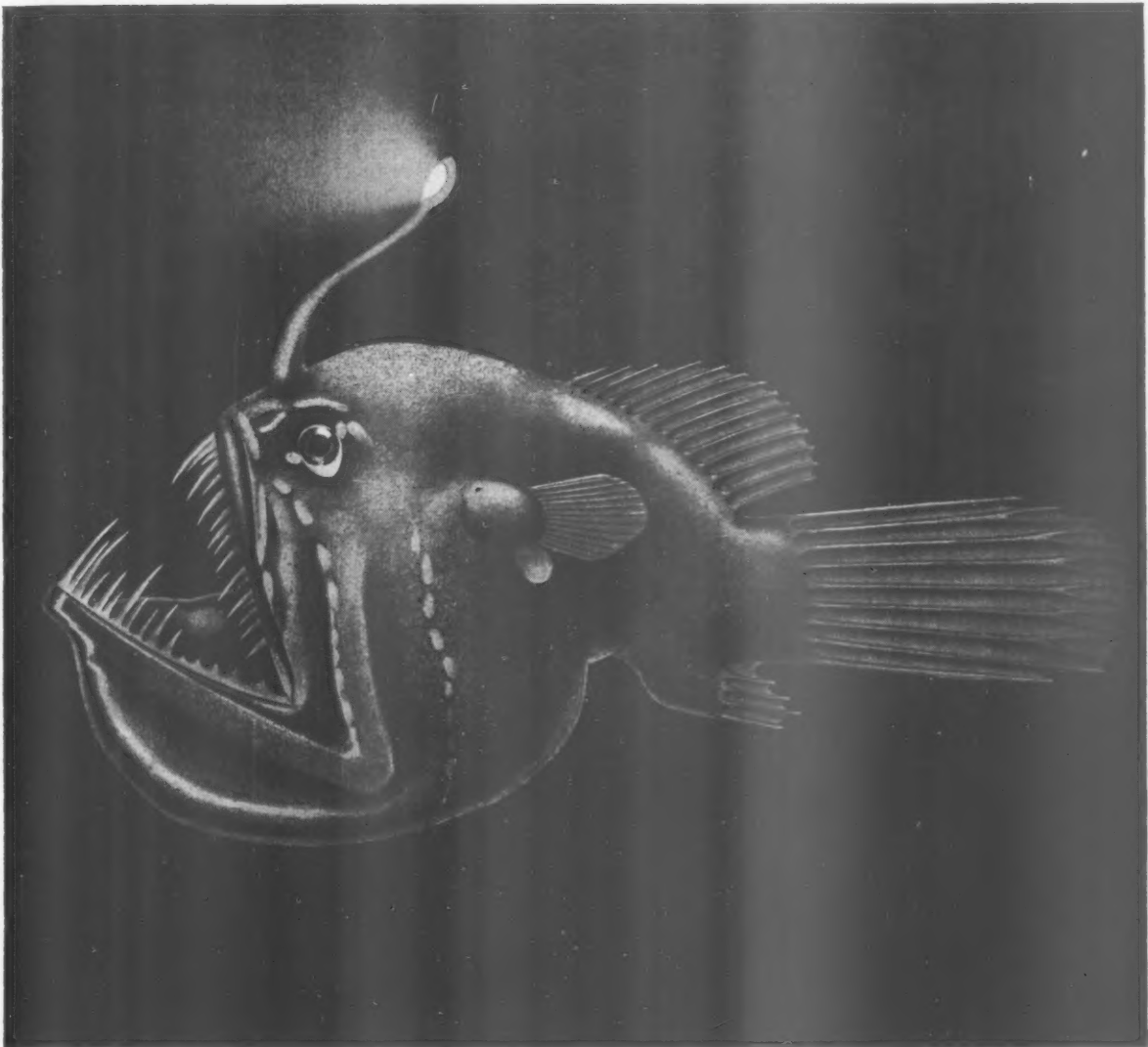
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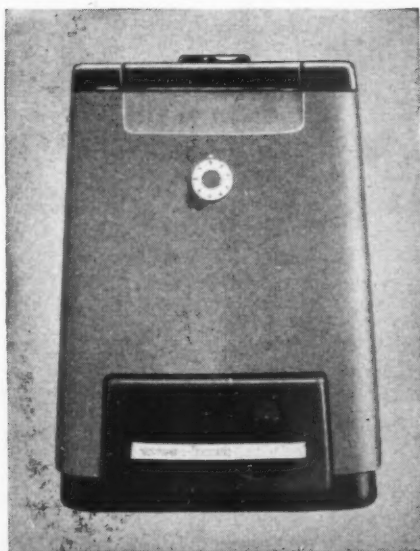


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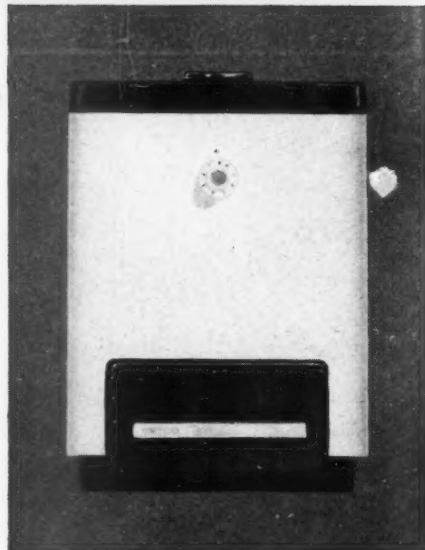


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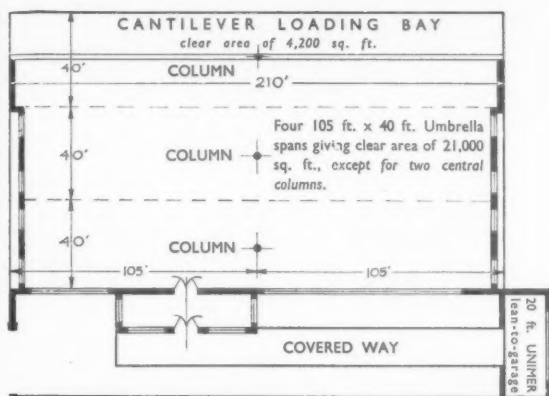
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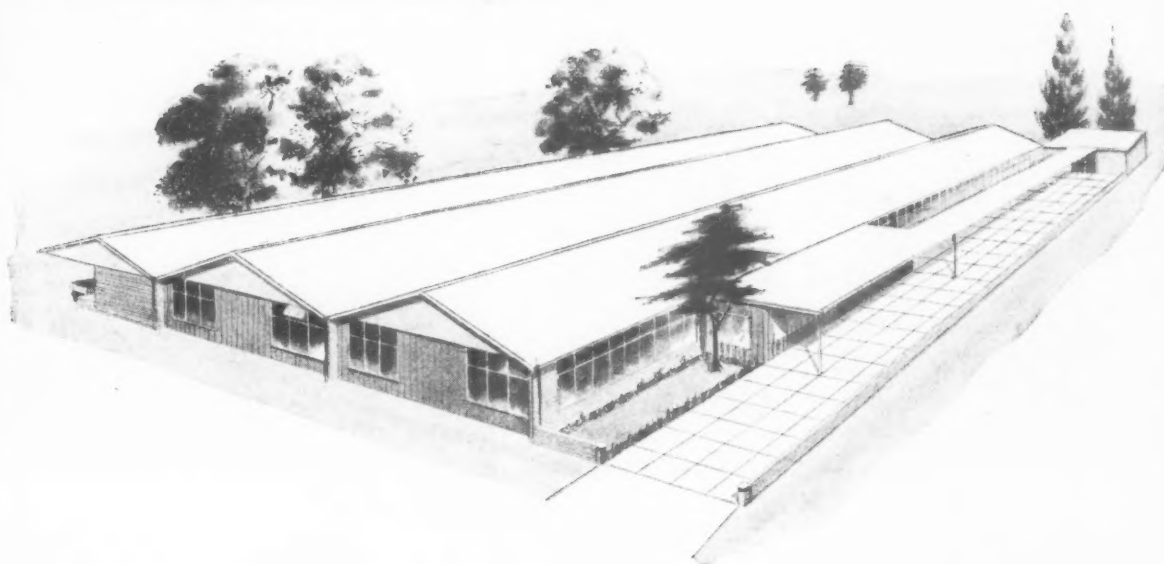
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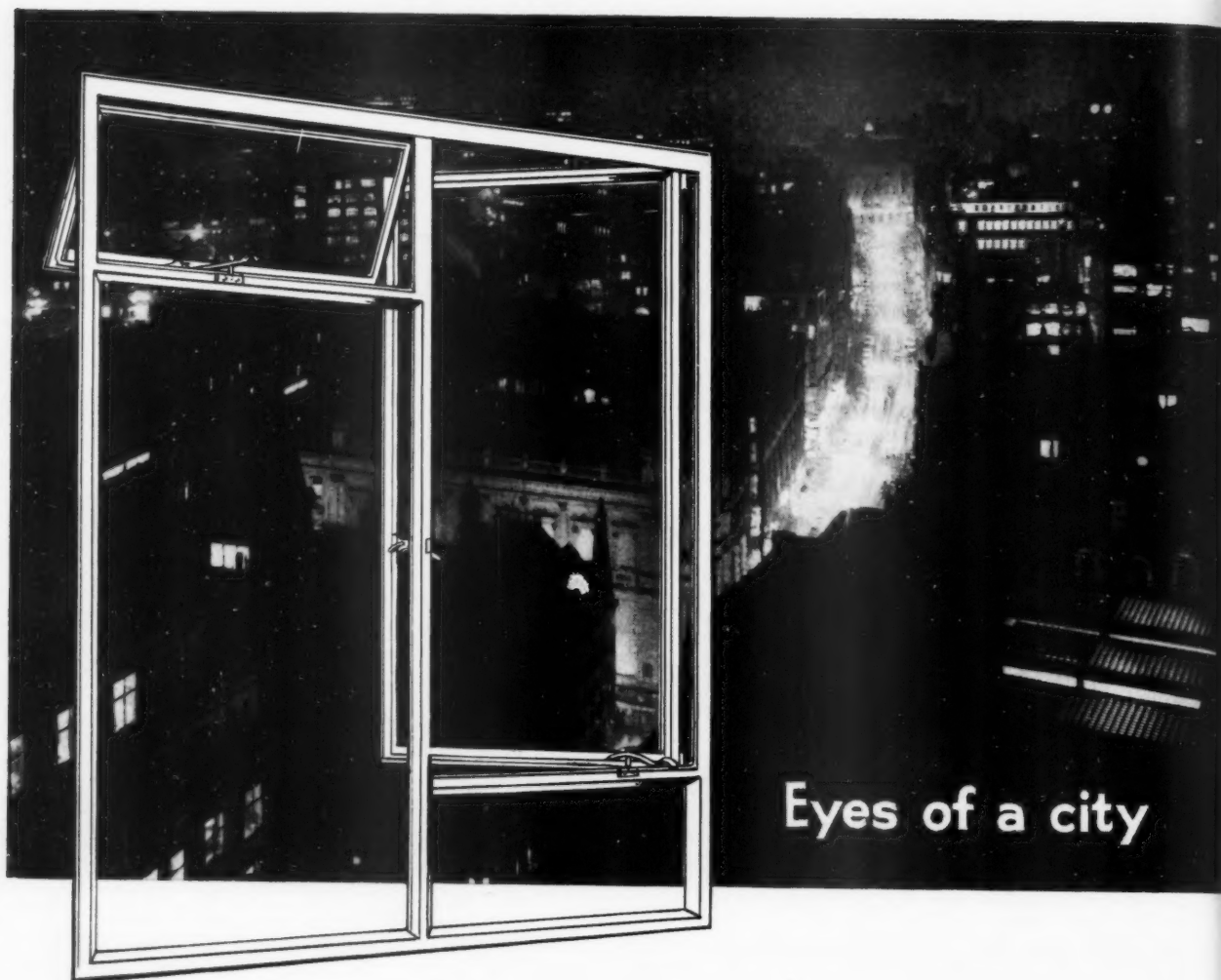
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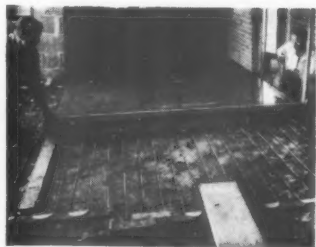
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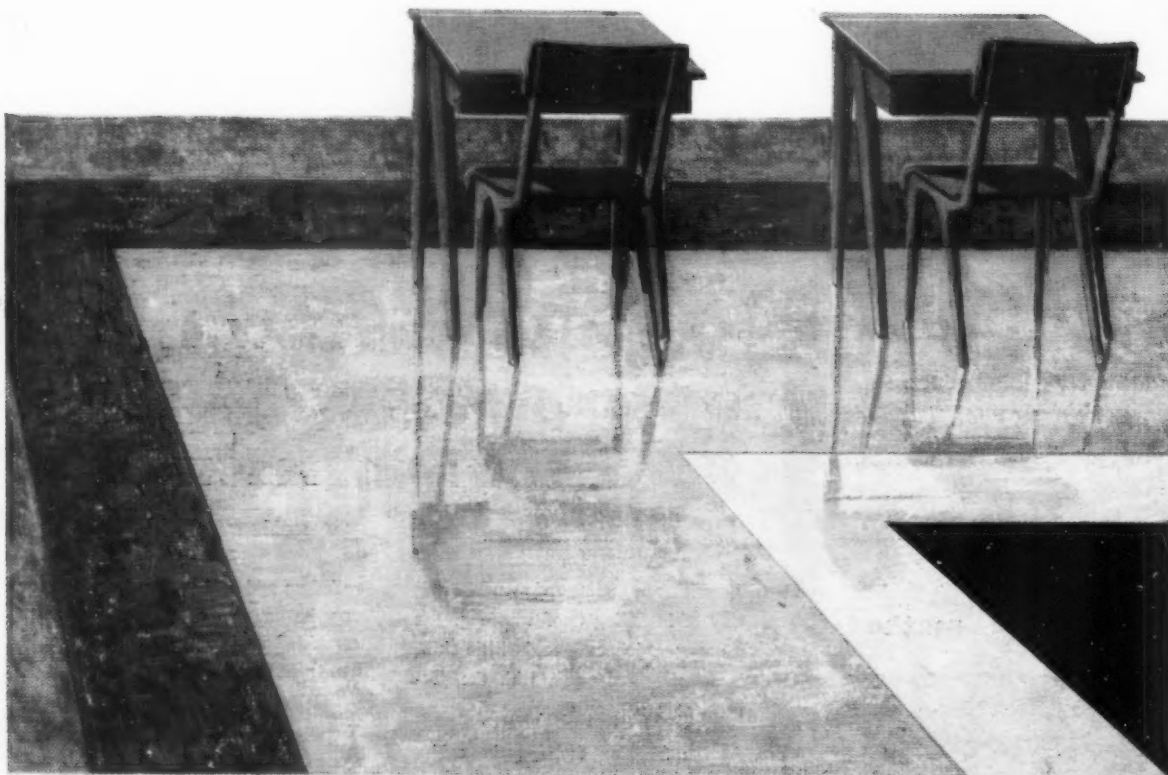
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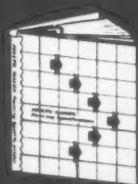
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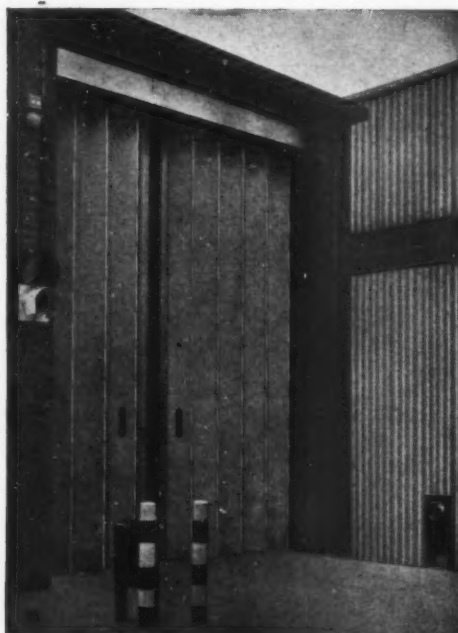
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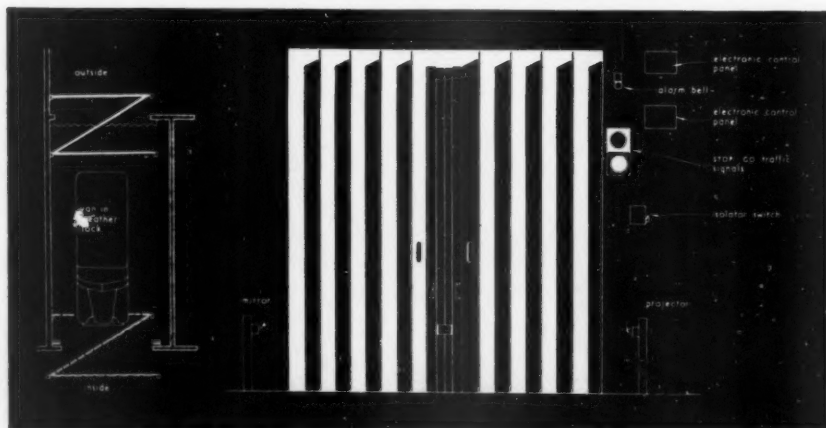
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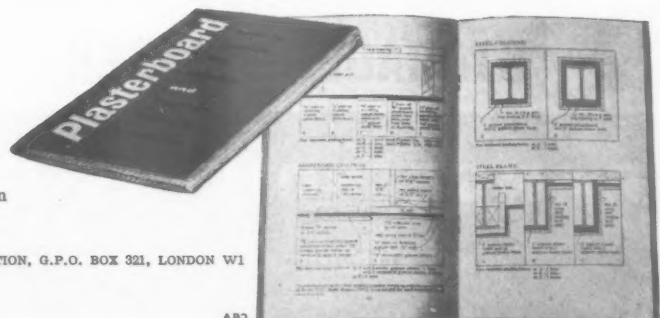
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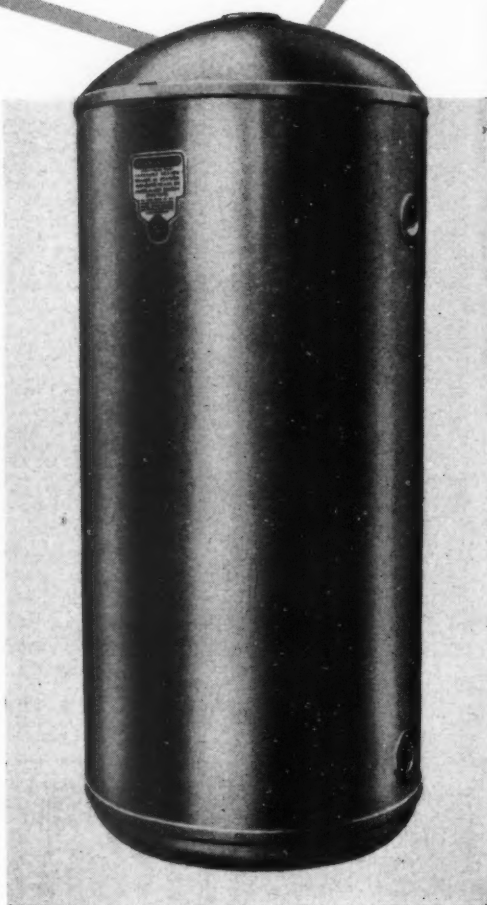
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
















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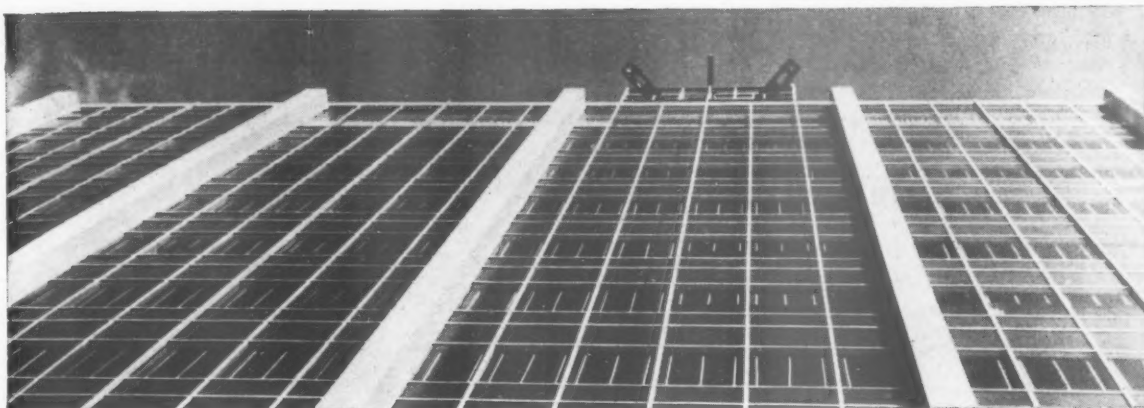
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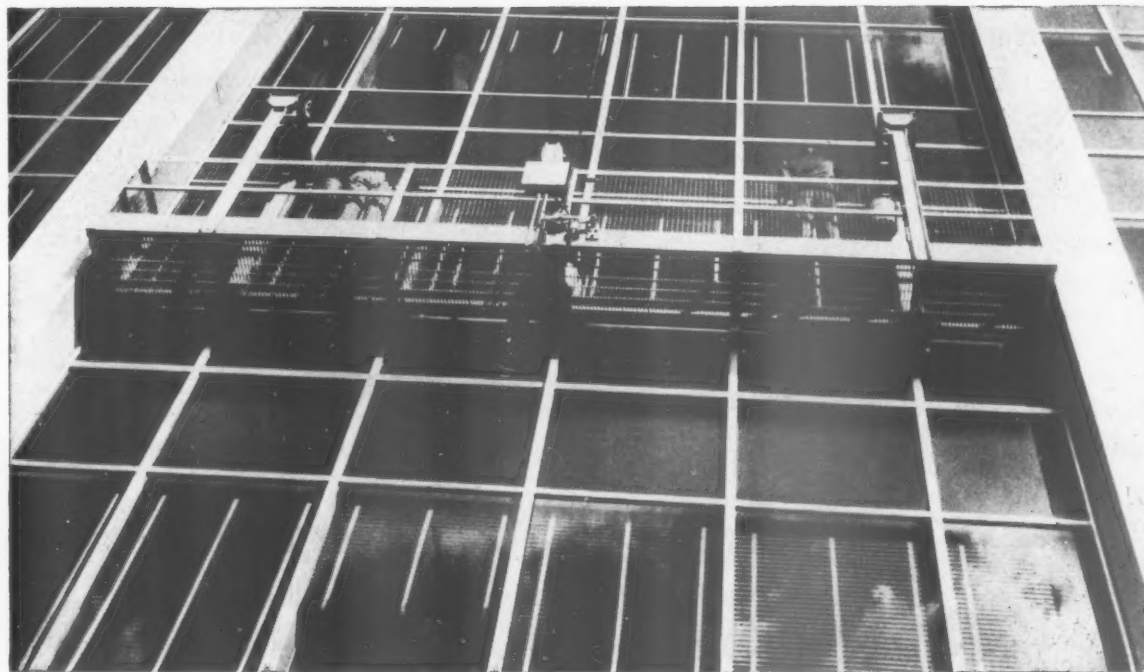
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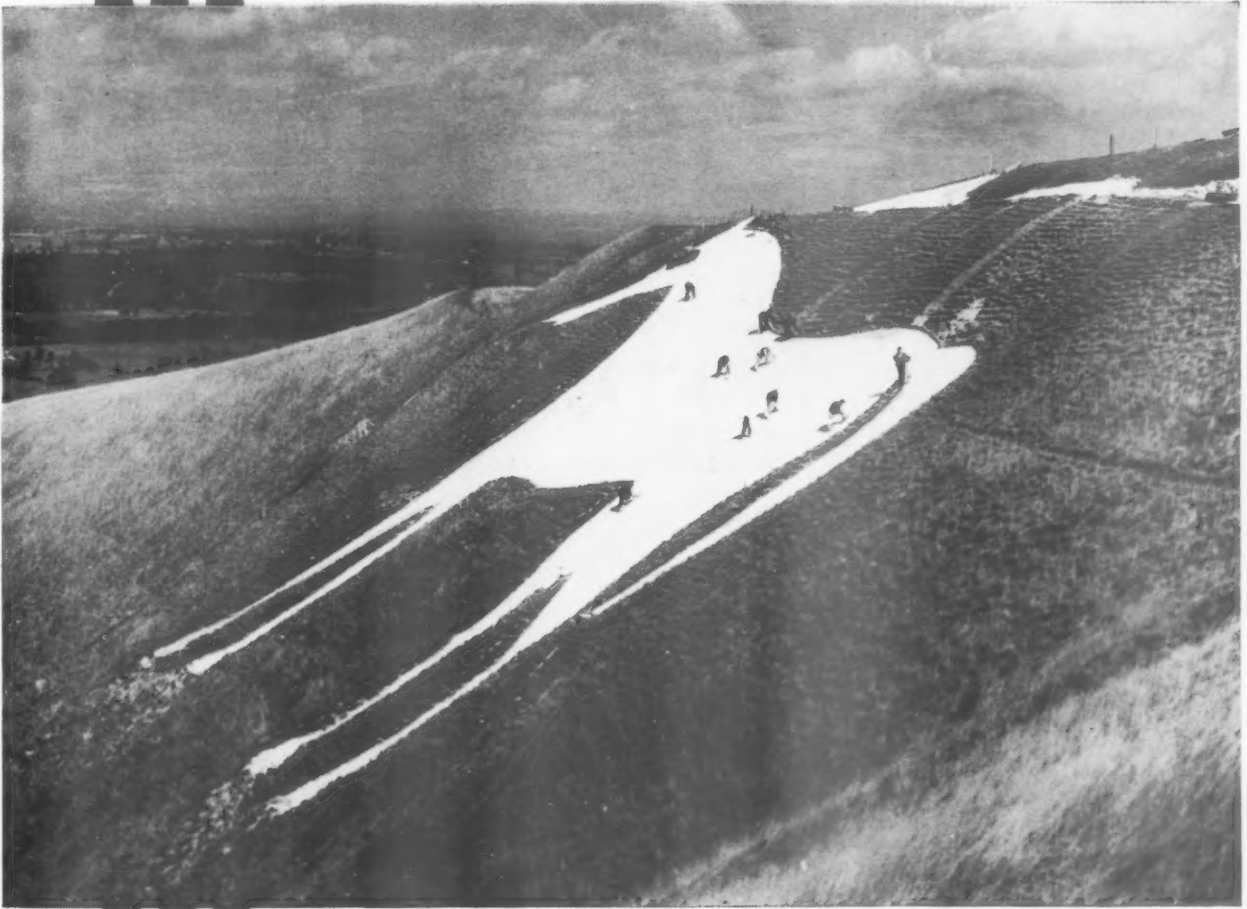
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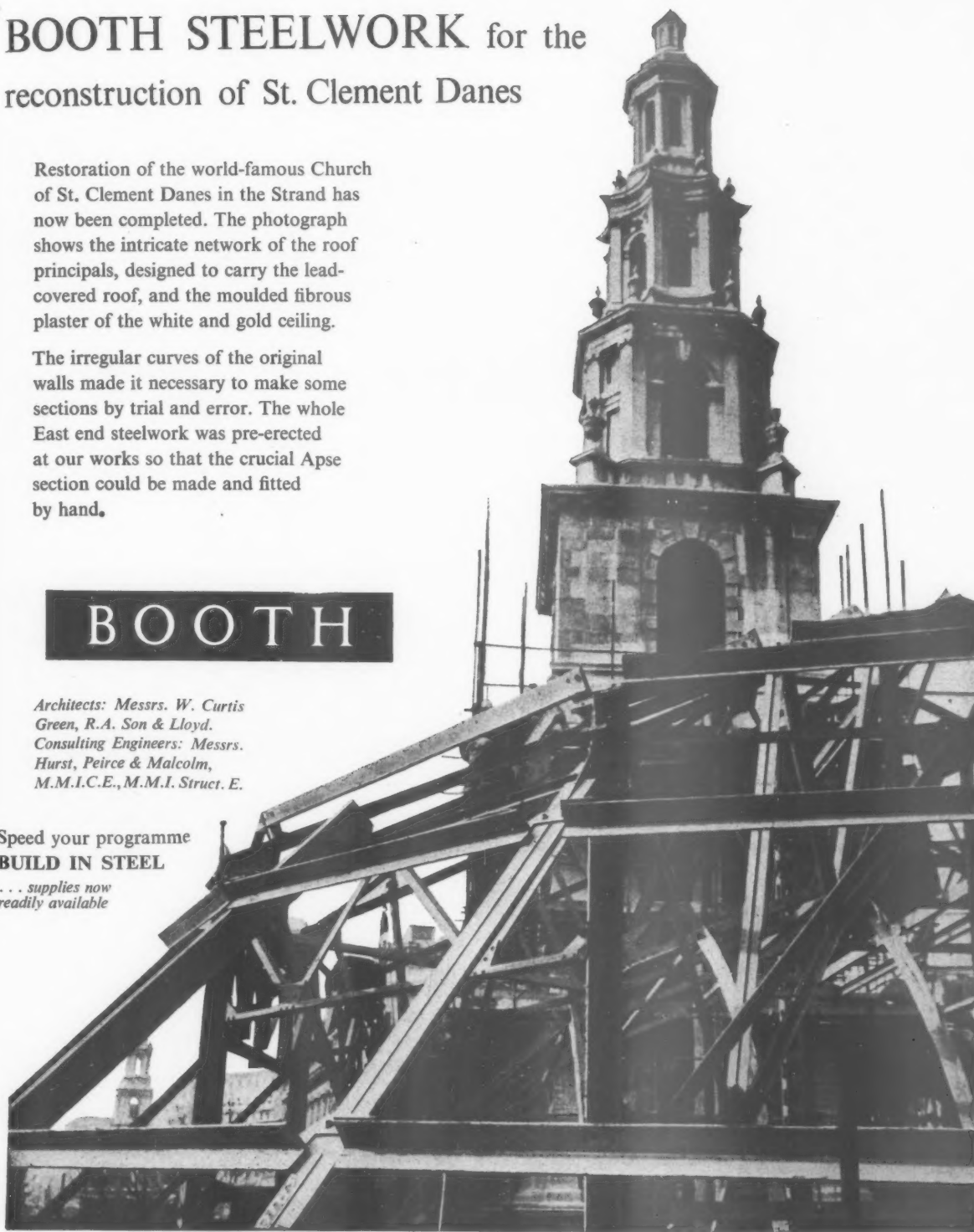
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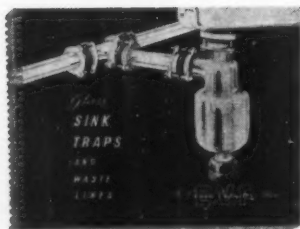
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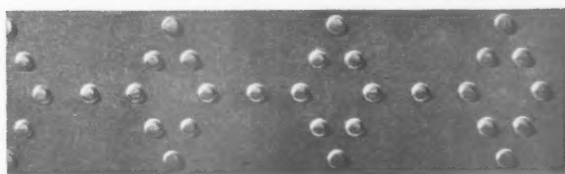
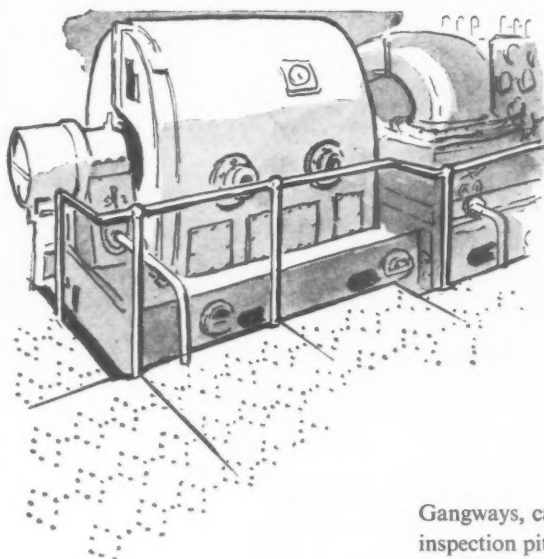
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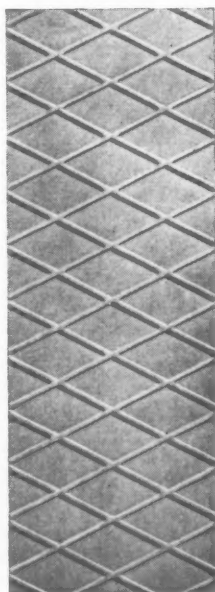
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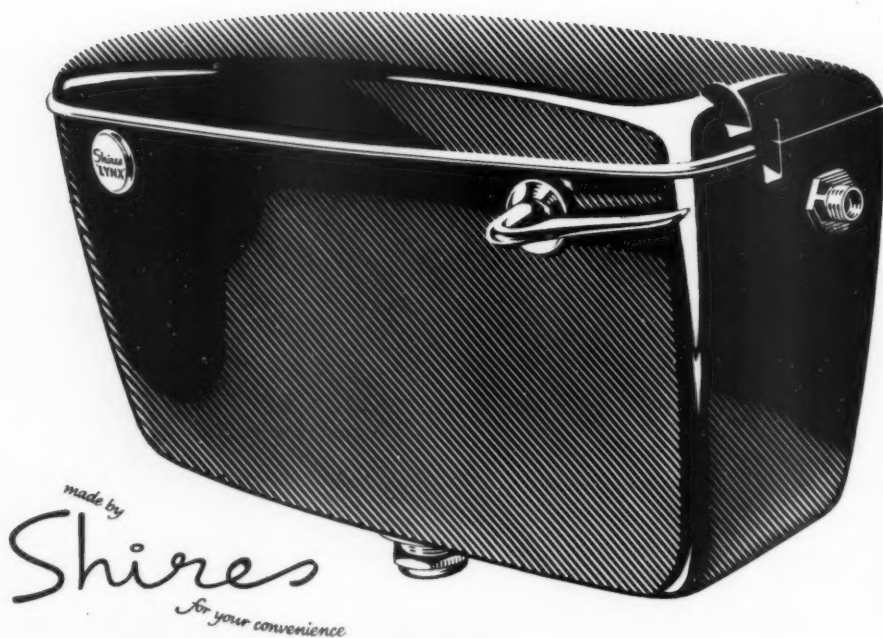
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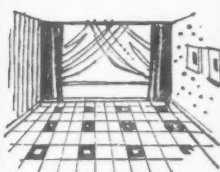
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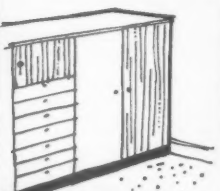
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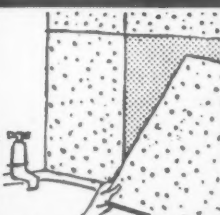
COUNTER
SURFACES



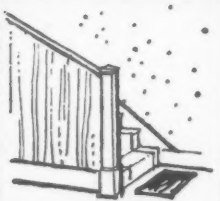
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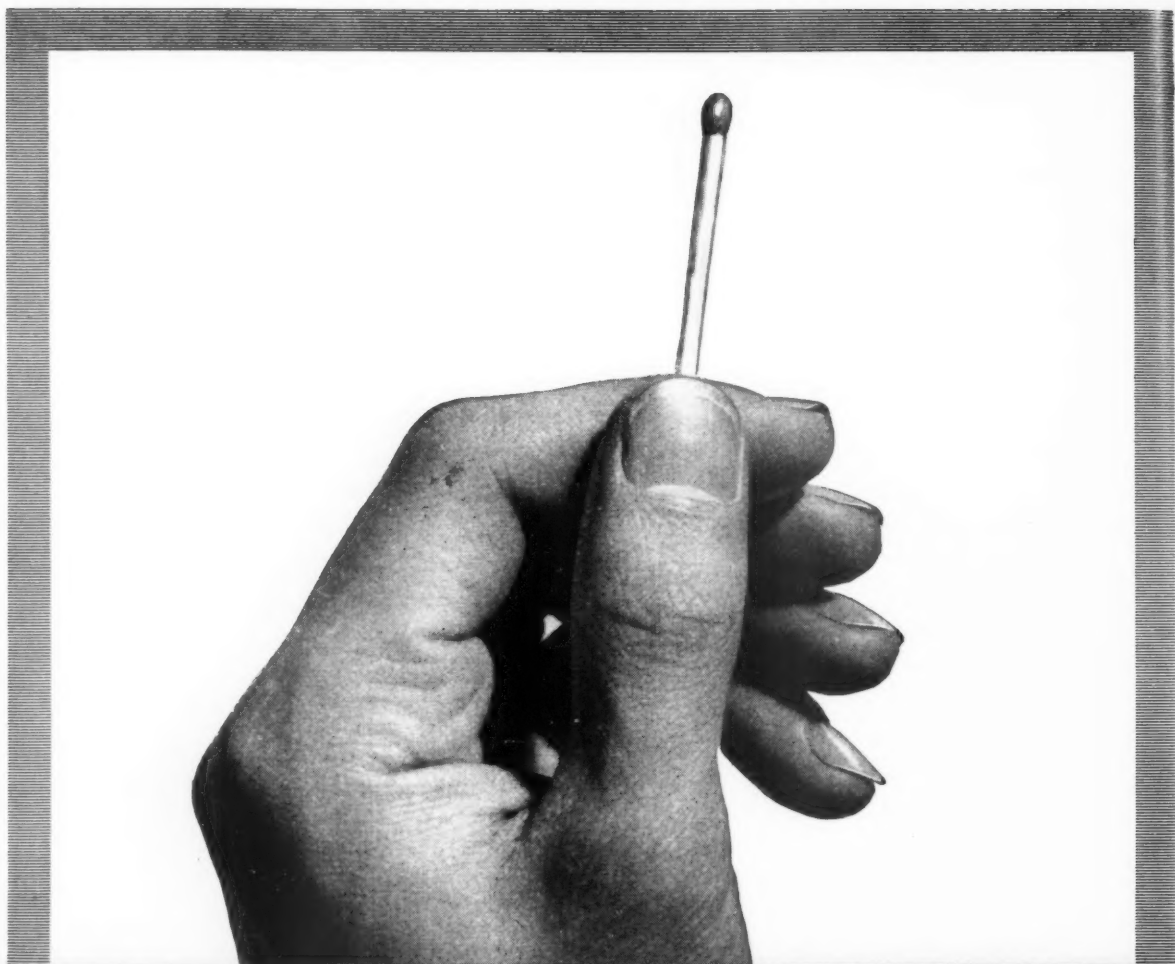
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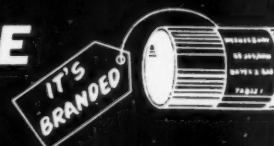
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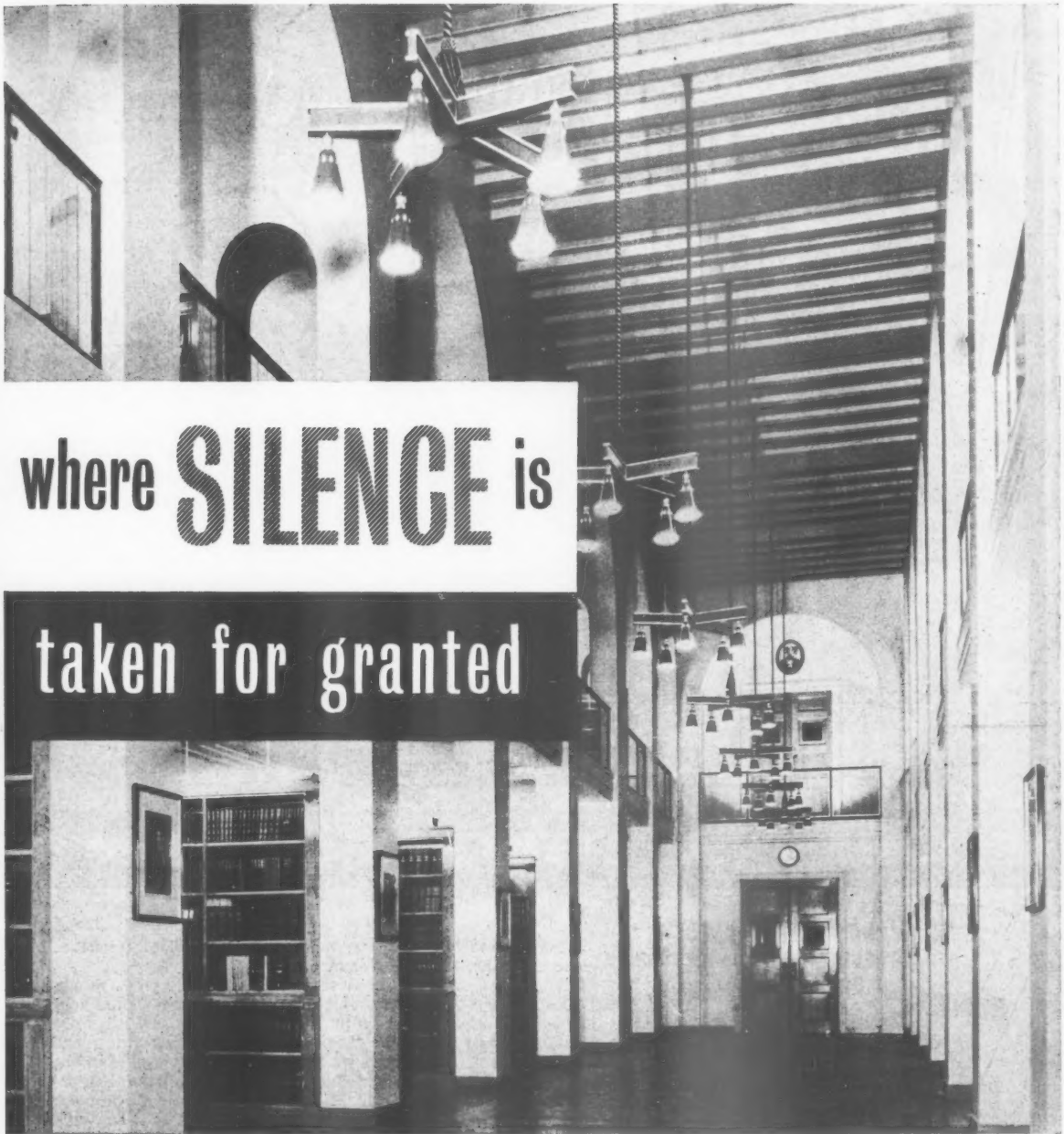
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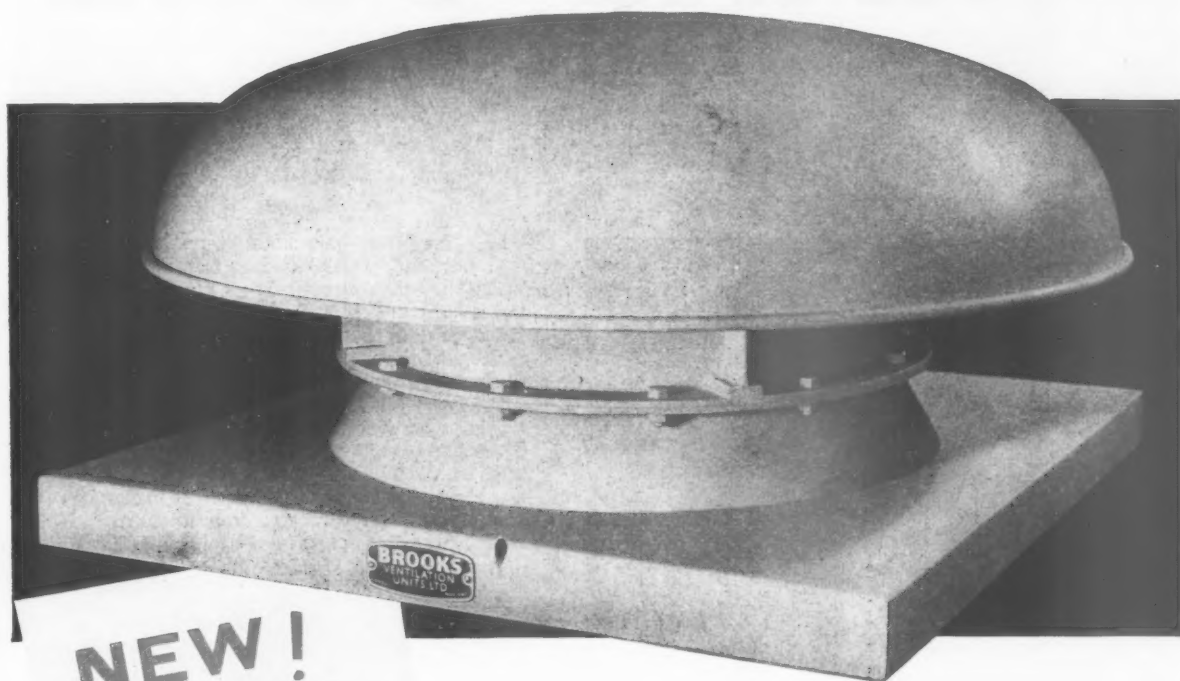
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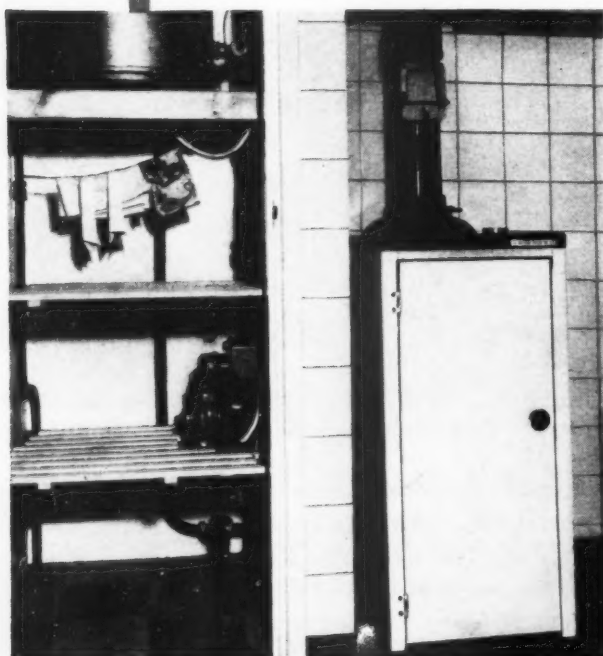
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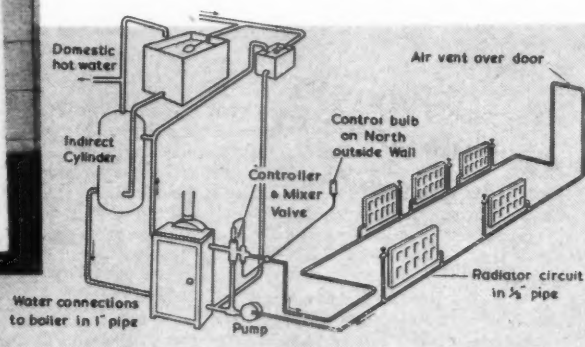


(Above) Boiler, fired with Hard Coke, serving a small bore system. The circulating pump can be seen inside the airing cupboard.
(Alongside) Typical small bore system.

The "small-bore" system of central heating, with hot water supply, is much less costly to install than the conventional gravity system, particularly in existing houses. It can also be much cheaper to run, no heat being wasted in the roof space or under floors.

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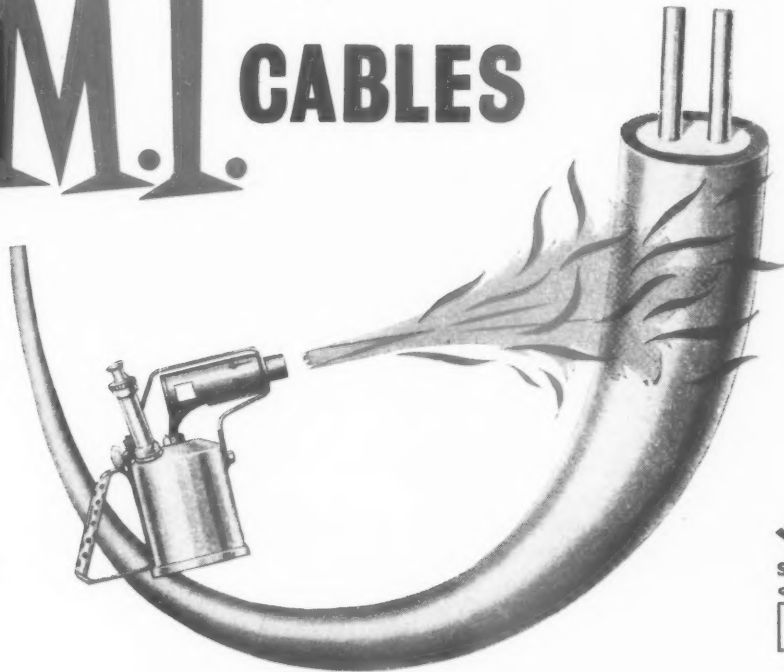
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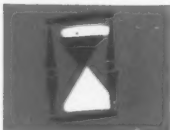
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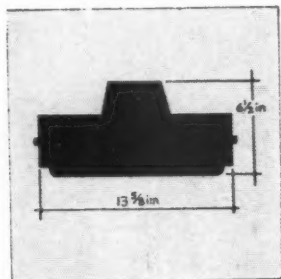
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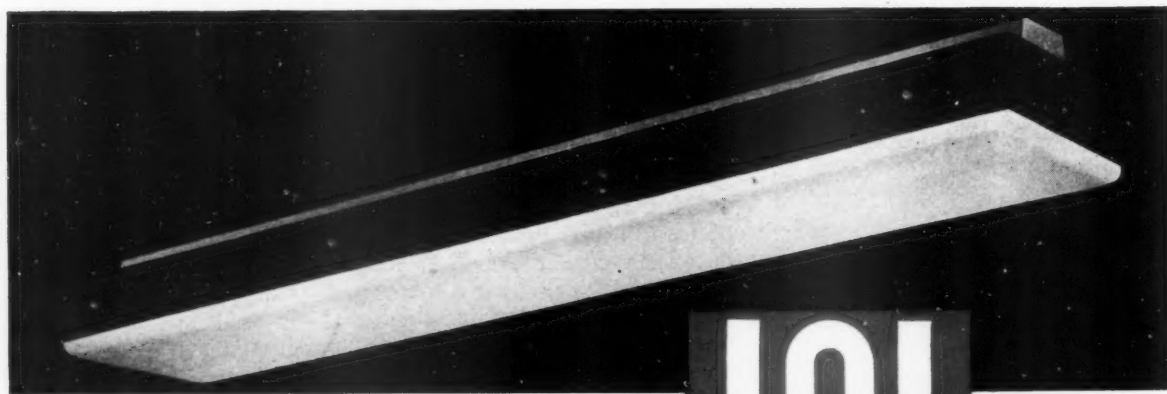
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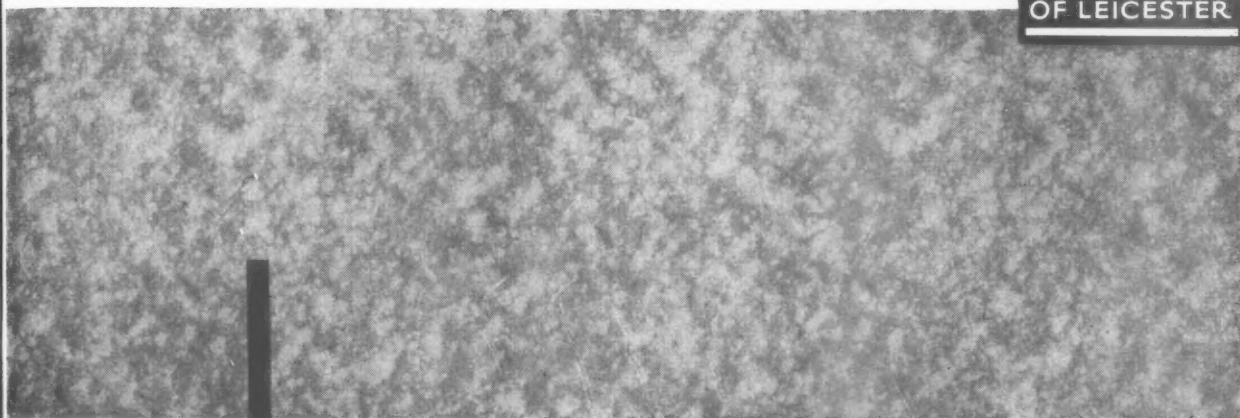
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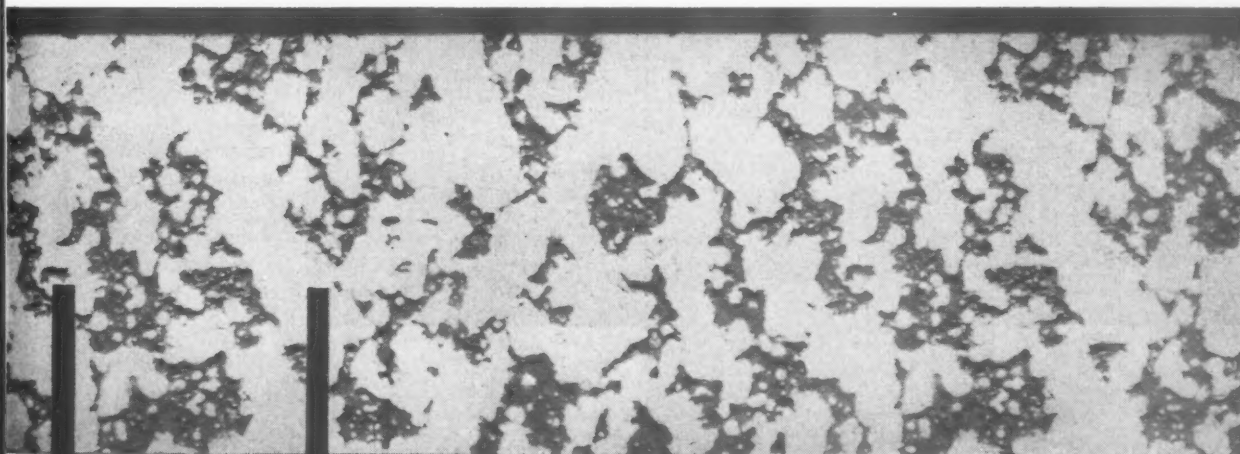
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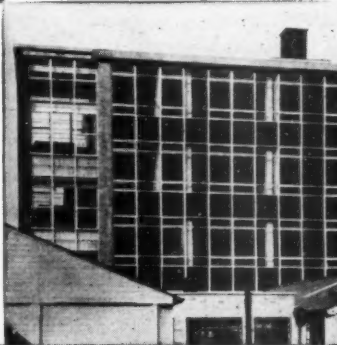
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Architect:
G. Noel Hill



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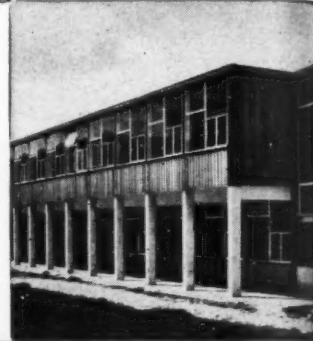


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John H. Haughan

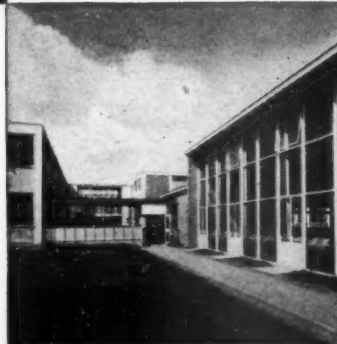
POOLE COLLEGE
OF FURTHER EDUCATION
Architects:
Elder & de Pierro



THURROCK TECHNICAL COLLEGE
Architect:
H. Conolly

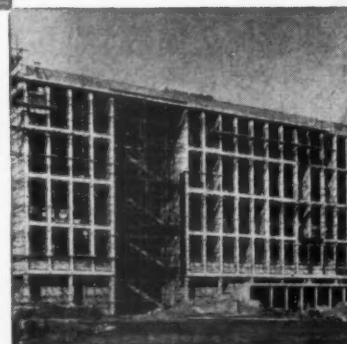


KEIGHLEY TECHNICAL COLLEGE
YORKS
Architect:
A. W. Glover



BASILDON
FRYERNS COUNTY SECONDARY
TECHNICAL SCHOOL
Architect:
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OXFORD
COLLEGE OF TECHNOLOGY,
ART & COMMERCE
Architect:
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Architect:
John Burton

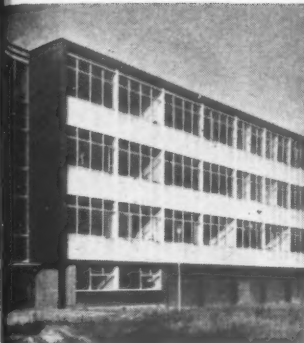


DUNCAN OF JORDANSTONE
COLLEGE OF ART
DUNDEE
Architect:
James Wallace



THE ARCHITECTS' JOURNAL
(Supplement) September 17, 1959

CAMBRIDGESHIRE
TECHNICAL COLLEGE
& SCHOOL OF ART
Architect:
Alister MacDonald

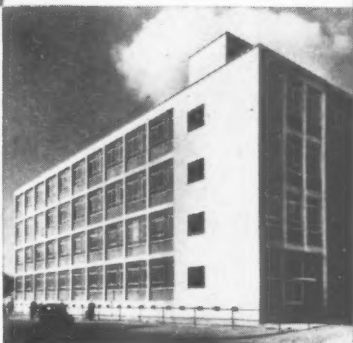


LONGLANDS COUNTY COLLEGE
MIDDLESBROUGH
Architect:
K. J. Caton



N. BEDS. COLLEGE
OF FURTHER EDUCATION
BEDFORD
Architect:
S. Vincent Goodman

QUEEN MARY COLLEGE
MILE END ROAD
Architects:
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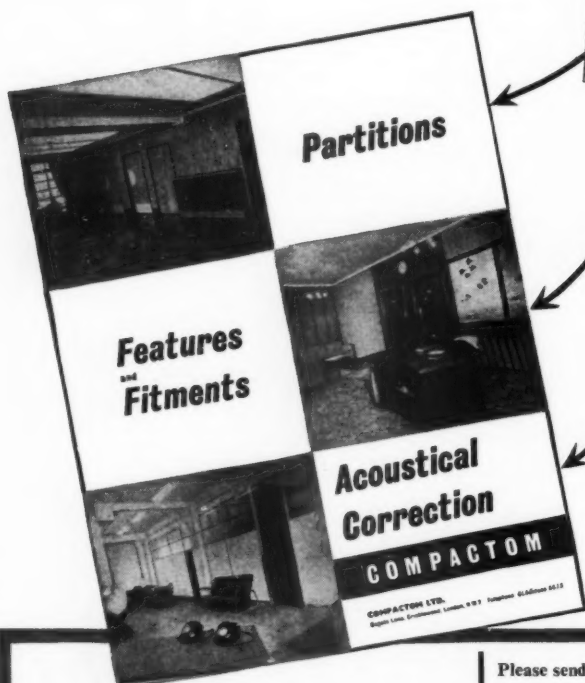


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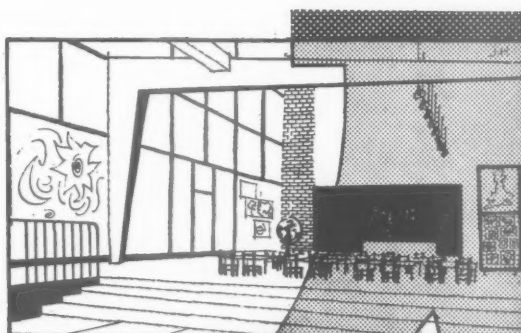
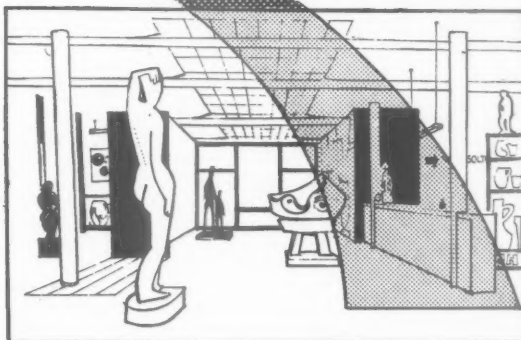
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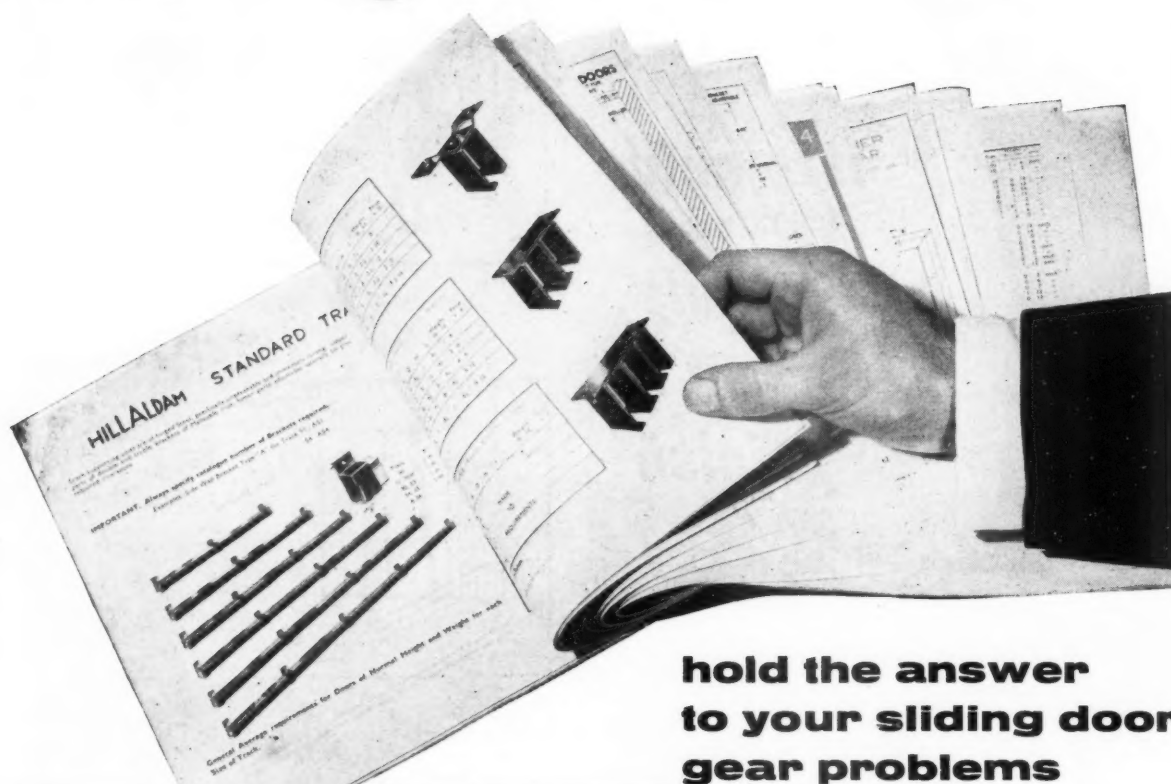
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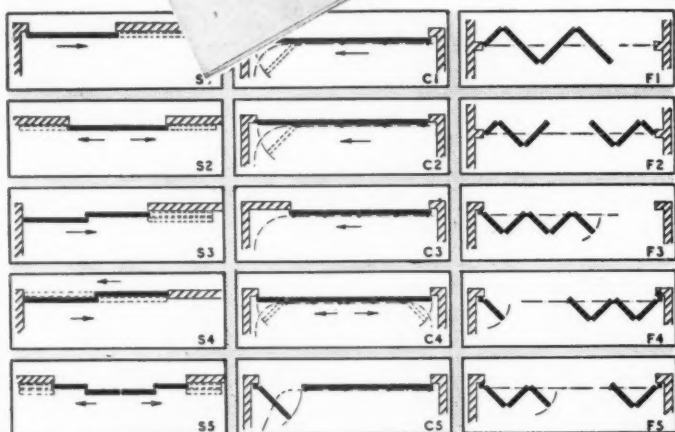
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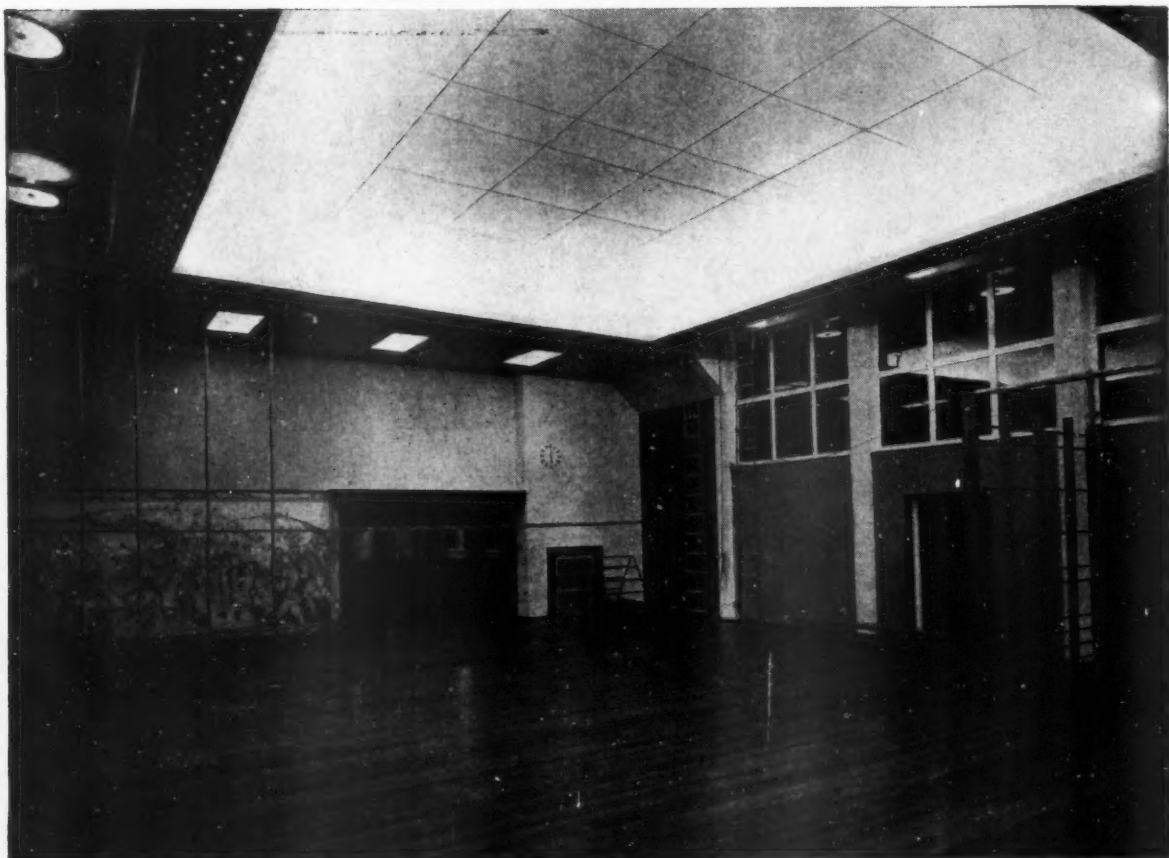
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The upper illustration shows a new valve factory at Paignton, for Standard Telephones and Cables Limited.

Architect: J. Francis Smith, F.R.I.B.A., F.R.I.C.S., Exeter.

Consulting Engineer: W. E. Green, M.I. Mech. E., M.I. Plant E., A.M.I. Prod. E., A.M.B.I.M. (Standard Telephones and Cables Ltd., Project Engineer).

General Contractors: Staverton Builders Ltd., Totnes.

Below it is shown the new Middlesbrough General Hospital Accident Wing which embodies some of the most up-to-date hospital equipment.

Architect: P. H. Knighton, M.B.E., A.R.I.B.A. Newcastle.

General Contractors: F. Shepherd & Son Ltd., York.

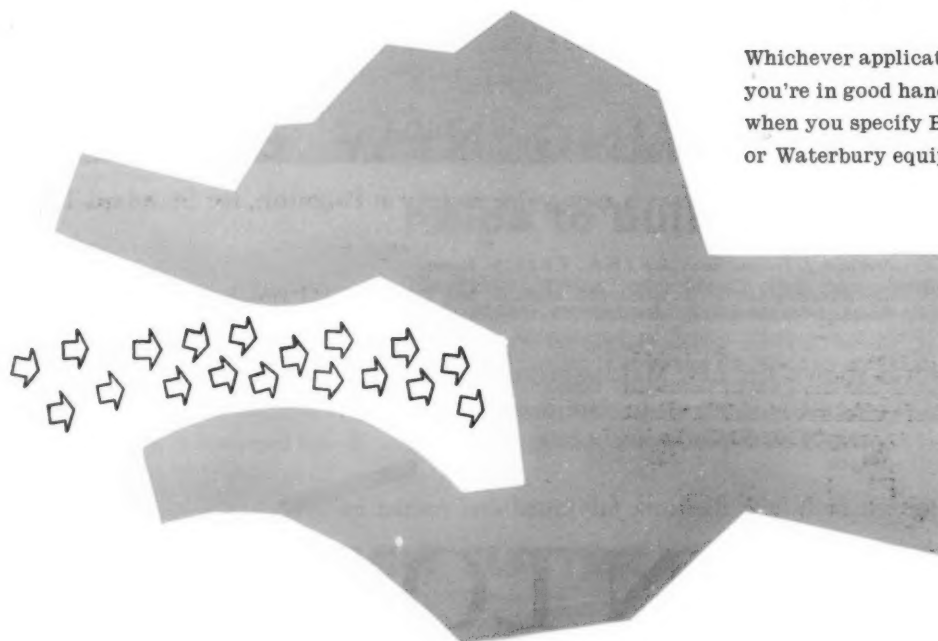
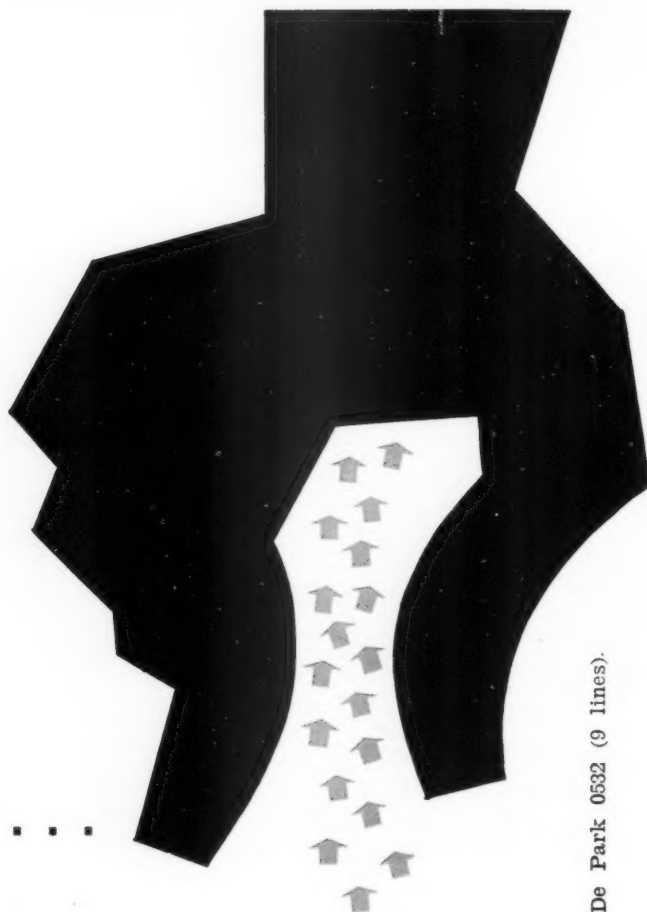
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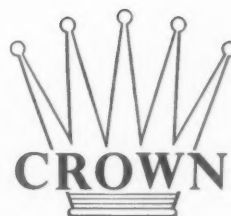
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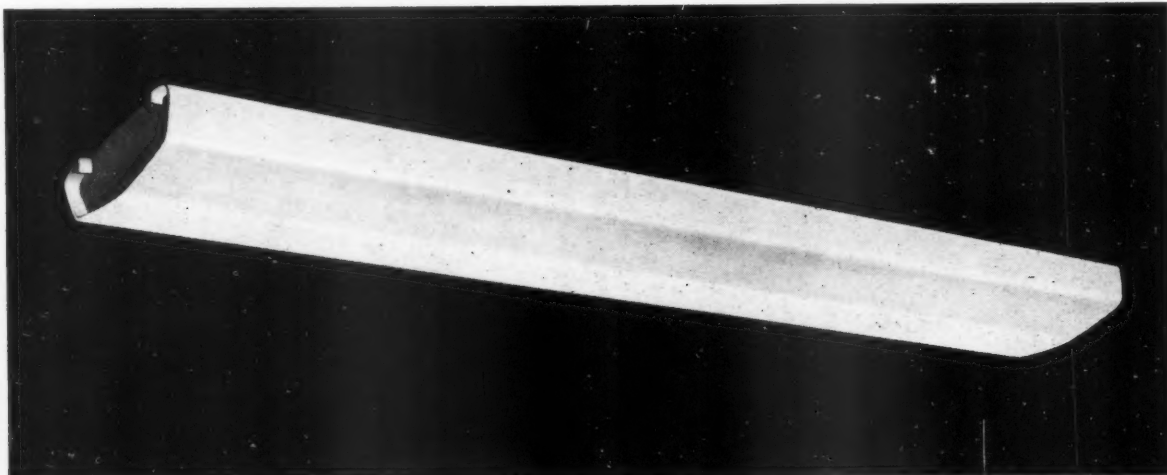
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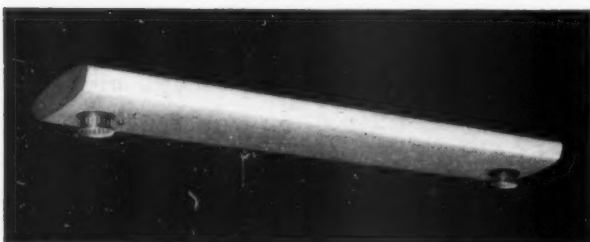
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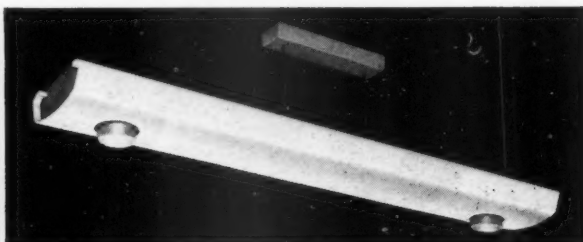


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AP 151



SIGHTHILL HEALTH CENTRE — designed by the Department of Health for Scotland.

Electric floor warming at the Sighthill Health Centre

Fully controlled warmth

Sighthill was designed as an Experimental Centre under the National Health Service Act. The building forms a hollow square round a central courtyard. The north wing holds administrative departments on the ground floor and dental theatres on the first floor. The south wing houses the joint services departments. The east wing comprises child welfare services and the west wing is divided into six medical suites.

The building is heated by electric low temperature underfloor radiant heating. This is thermostatically controlled and designed to maintain against an outside temperature of 25°F. the following inside temperatures: surgeries, recovery and X-ray rooms 70°F.; passages and lavatories 60°F.; kitchen 52°F.; other rooms 65°F. Electrical intake is "off peak" and available between 7 p.m. and 7 a.m., and 11 a.m. and 3 p.m.

Loadings

Total loading amounts to 262 kW and is designed for off-peak operation. This load comprises 232 kW embedded in the concrete floors and 30 kW in concealed wall panels. The total floor area of the building is 35,000 sq. ft.

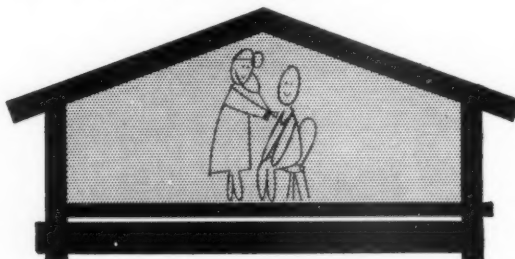
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The installation has been running for over five years and the average annual consumption for floor warming purposes is 418,960 units costing £1,400.

Thermograph records were taken during the winter 1955/56. These show that when, in February 1956, the mean daily outside temperature was 22.6°F., the maximum drop in inside temperature during the cut-off period was only 2.6°F. Even under these extreme conditions the internal air temperature did not fall below 60°F.



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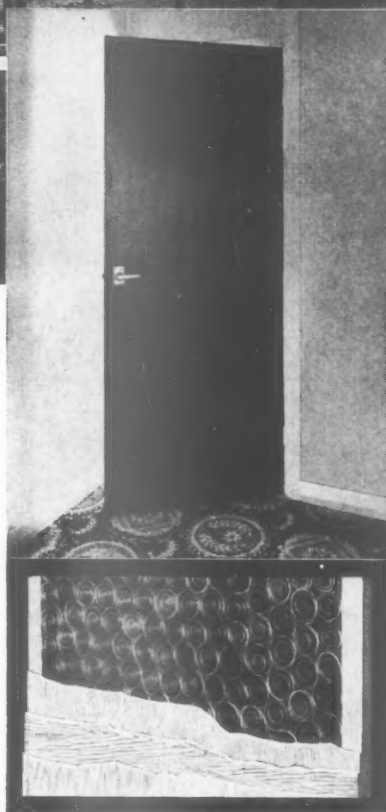
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(Photograph of Oakfield Park Estate, Hitchin, by courtesy of Sir Lindsay Parkinson & Co. Ltd.)

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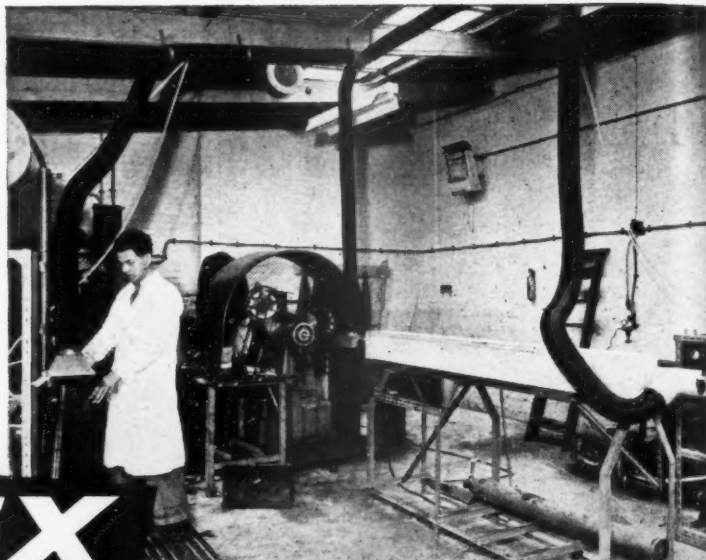
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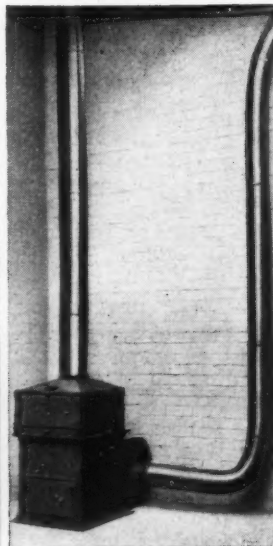
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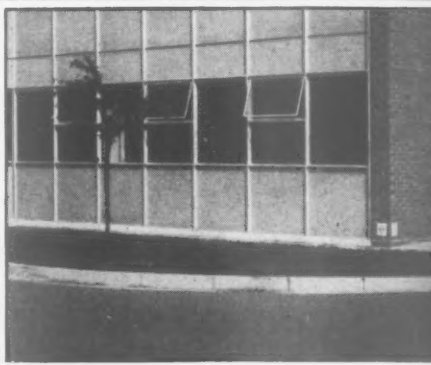
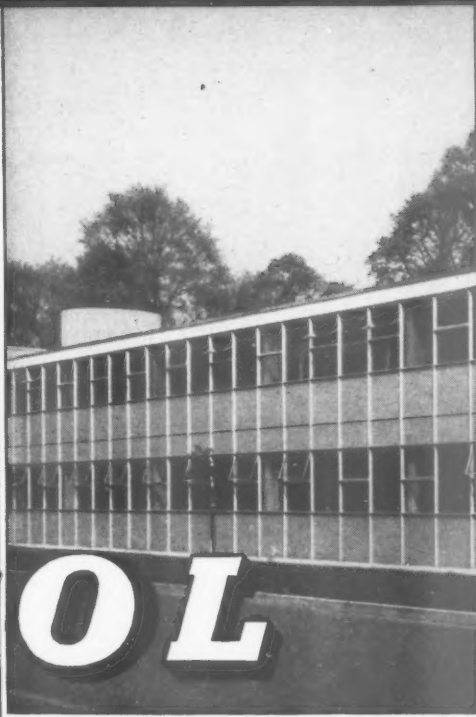
* Fume extraction.



* Air filter showing arrangement of ducting free from joints.



Project for : National Physical Laboratory, Teddington.
Architect : A. S. Reid, A.R.I.B.A., of the Chief
Architect's Division, Ministry of Works
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ESCOL panels shown are in pale grey (B.S.I. 7-078)
and those on the north elevation in brown (B.S.I. 3-039)
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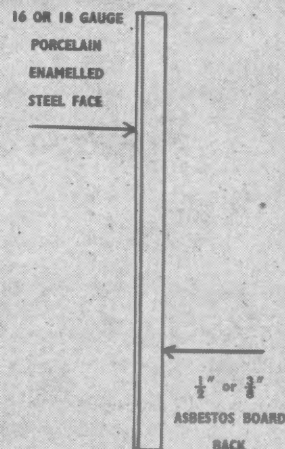


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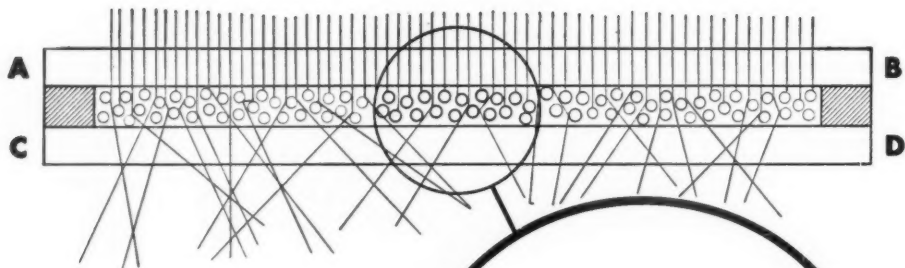
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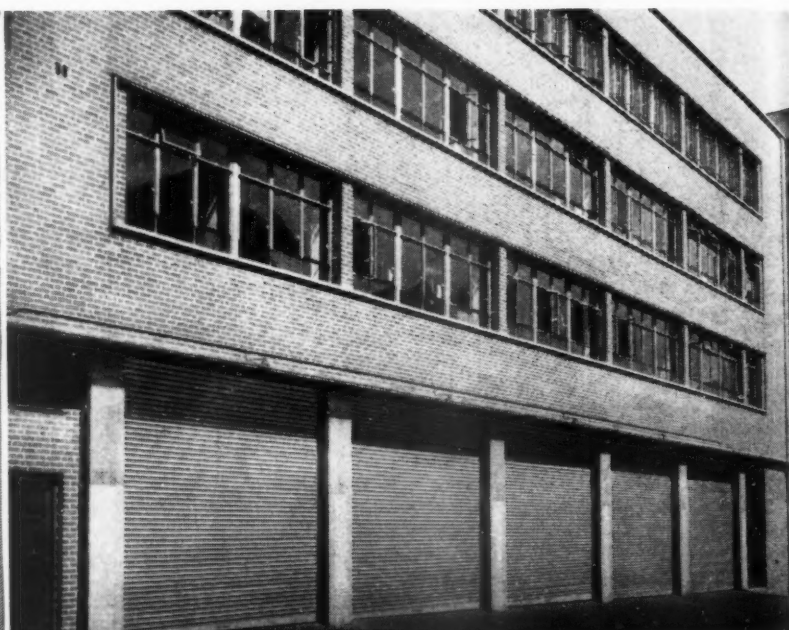
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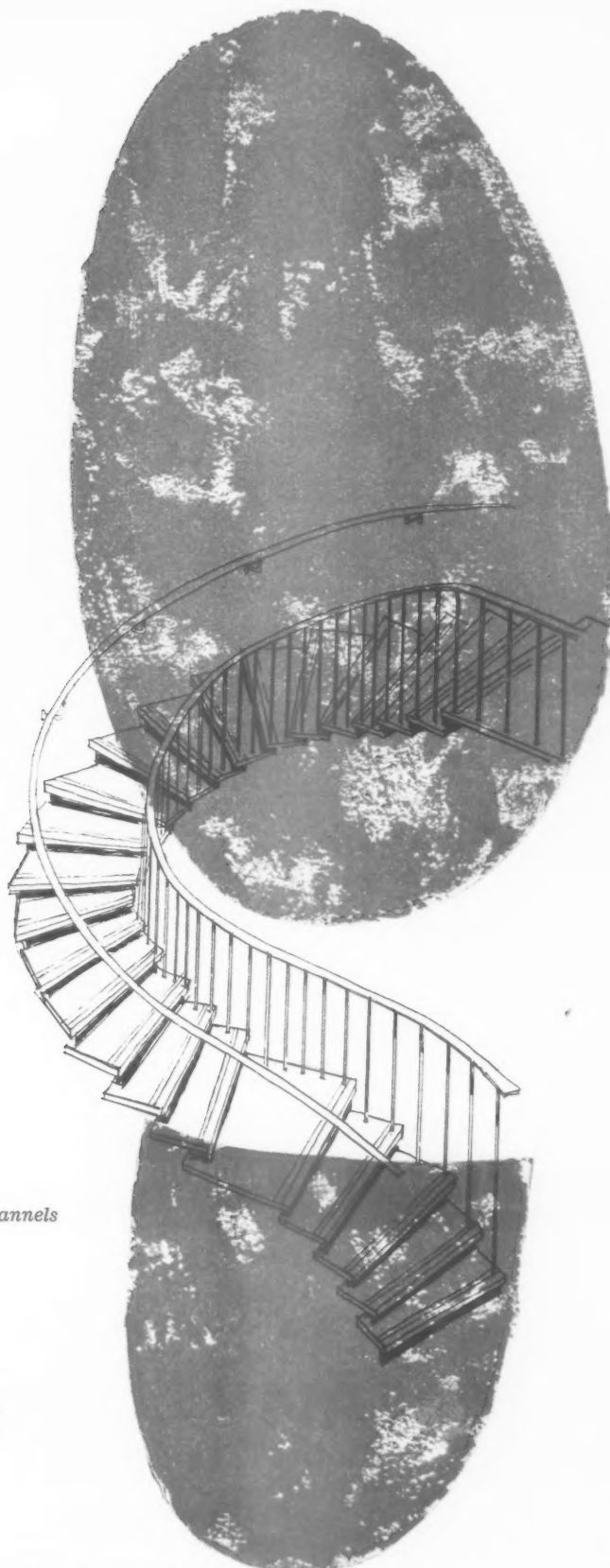
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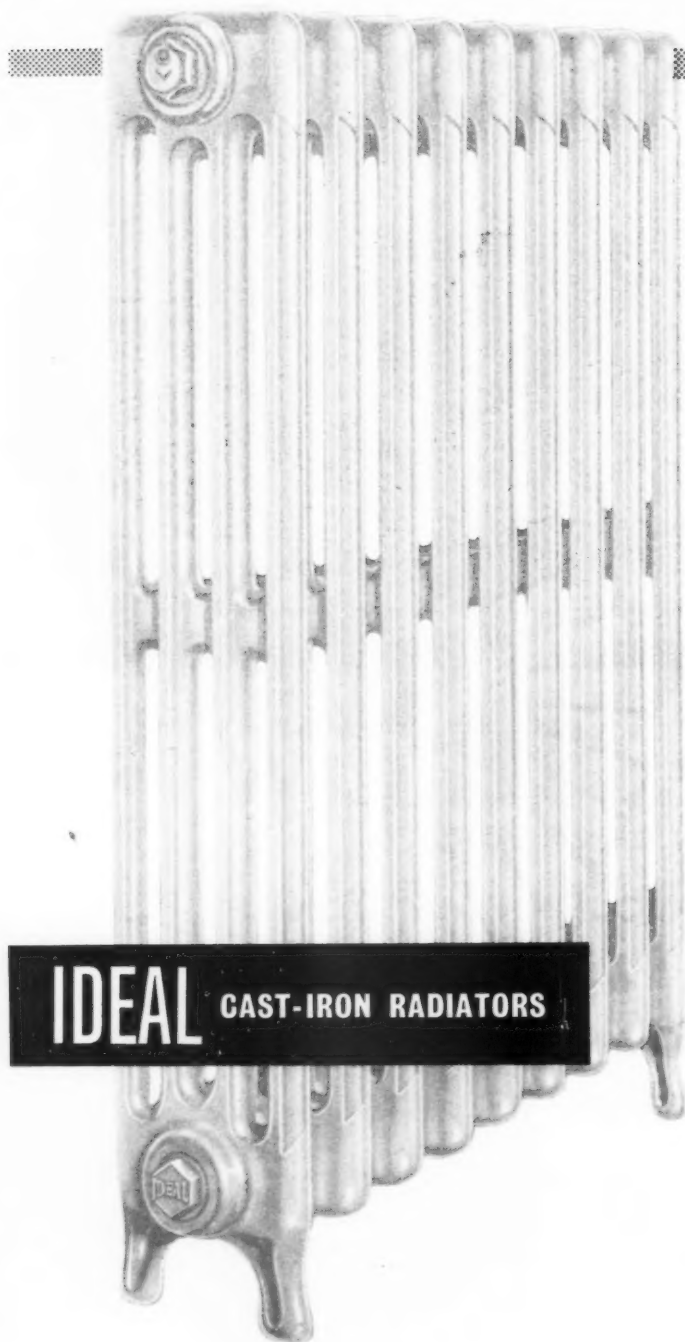
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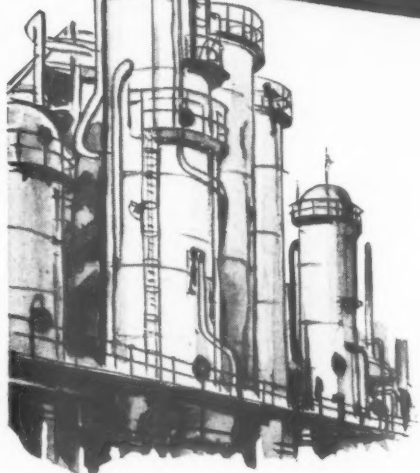


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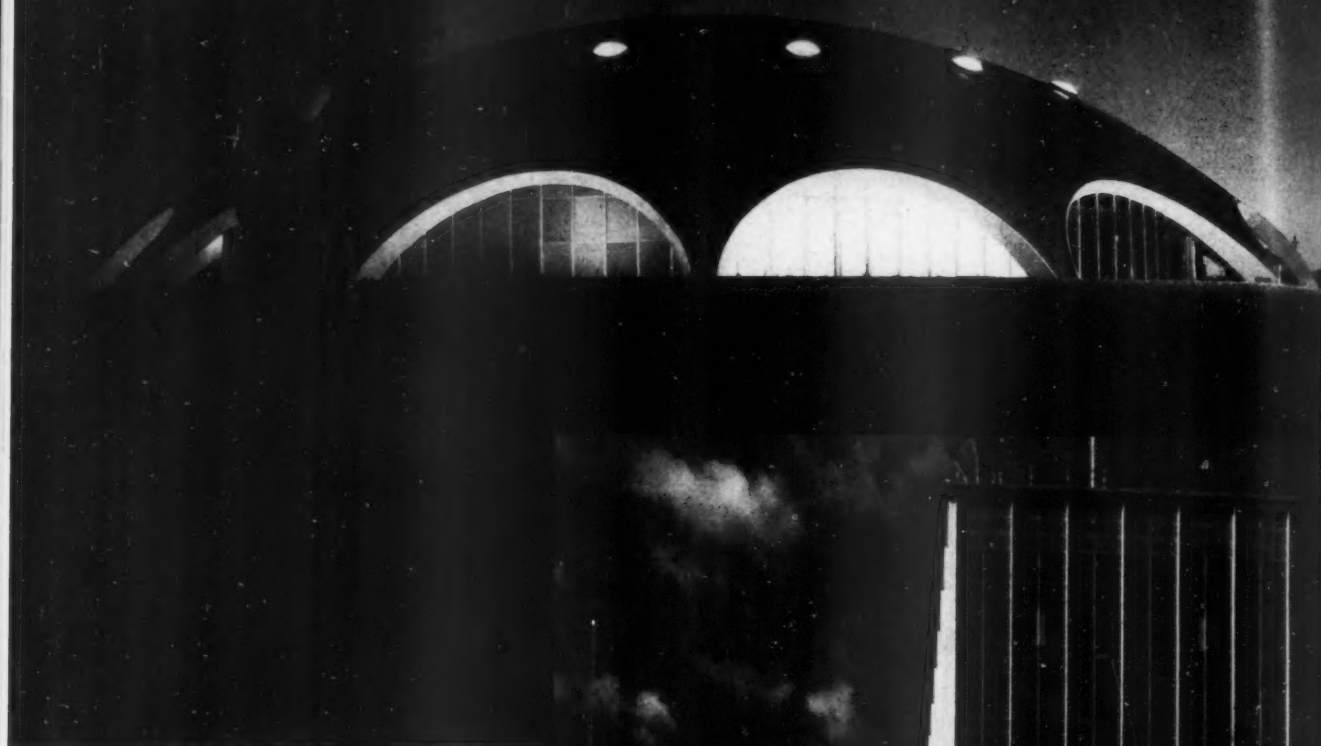
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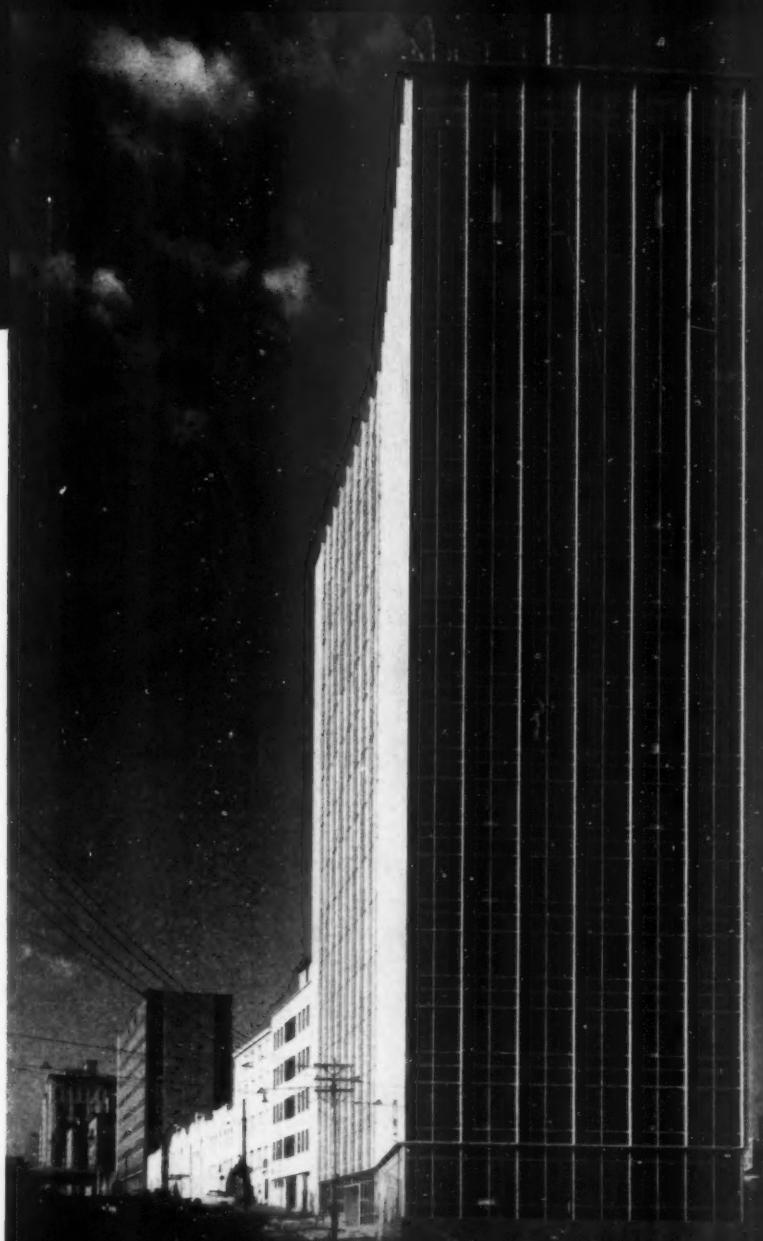


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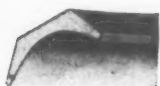
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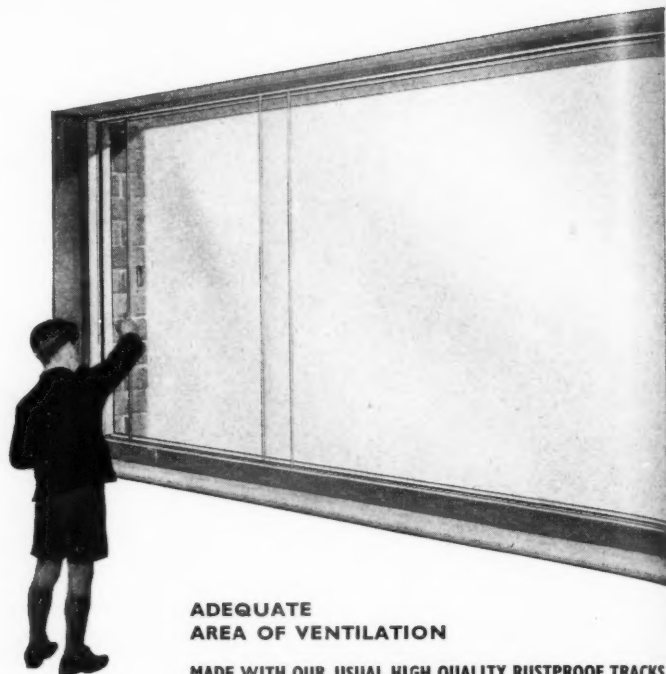
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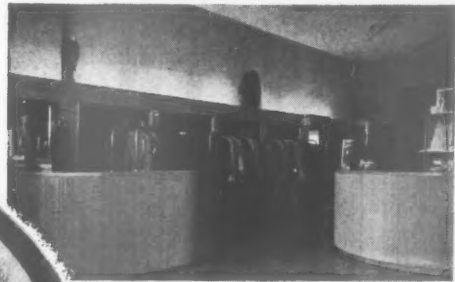
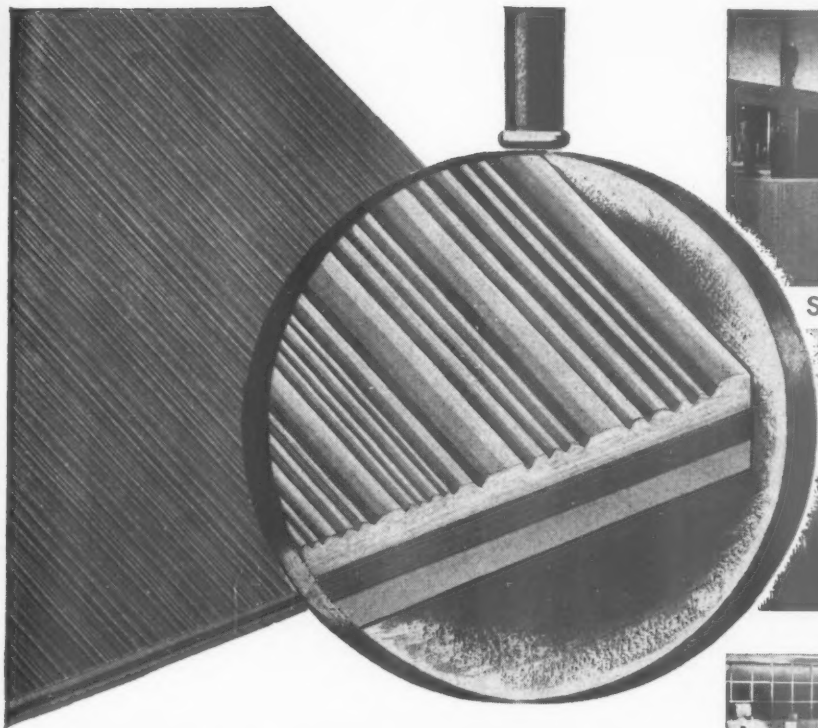
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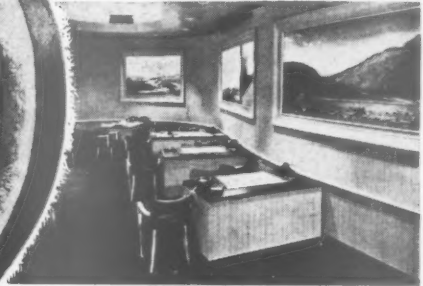
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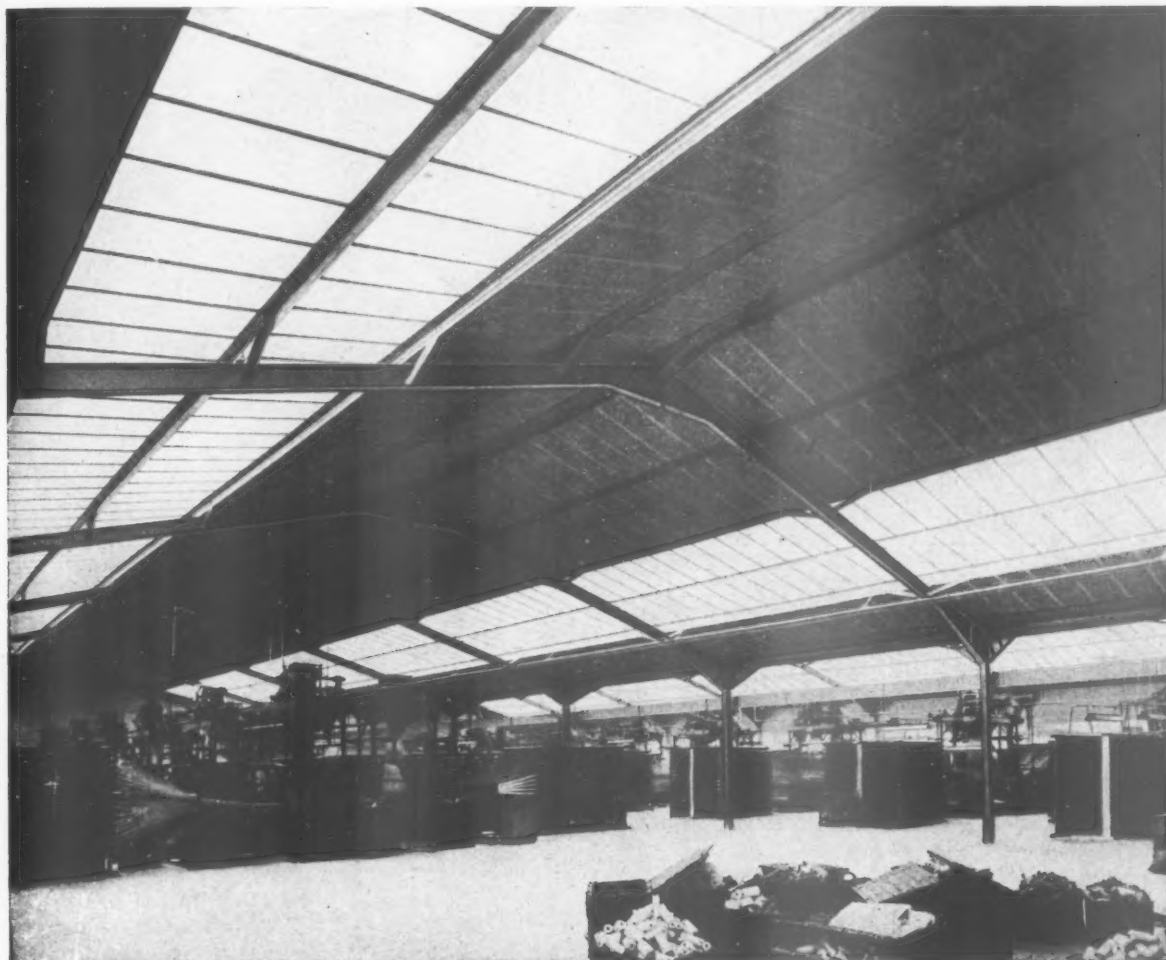
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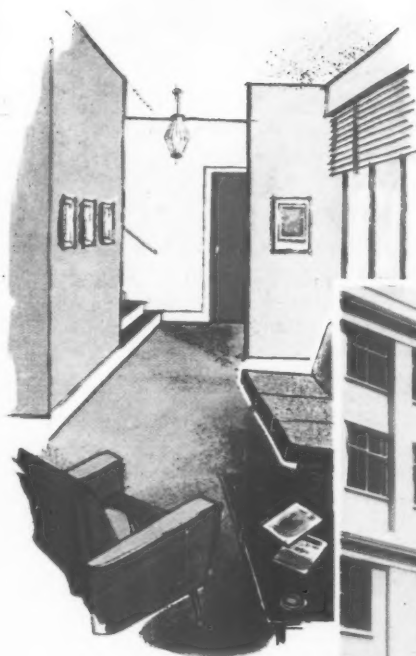
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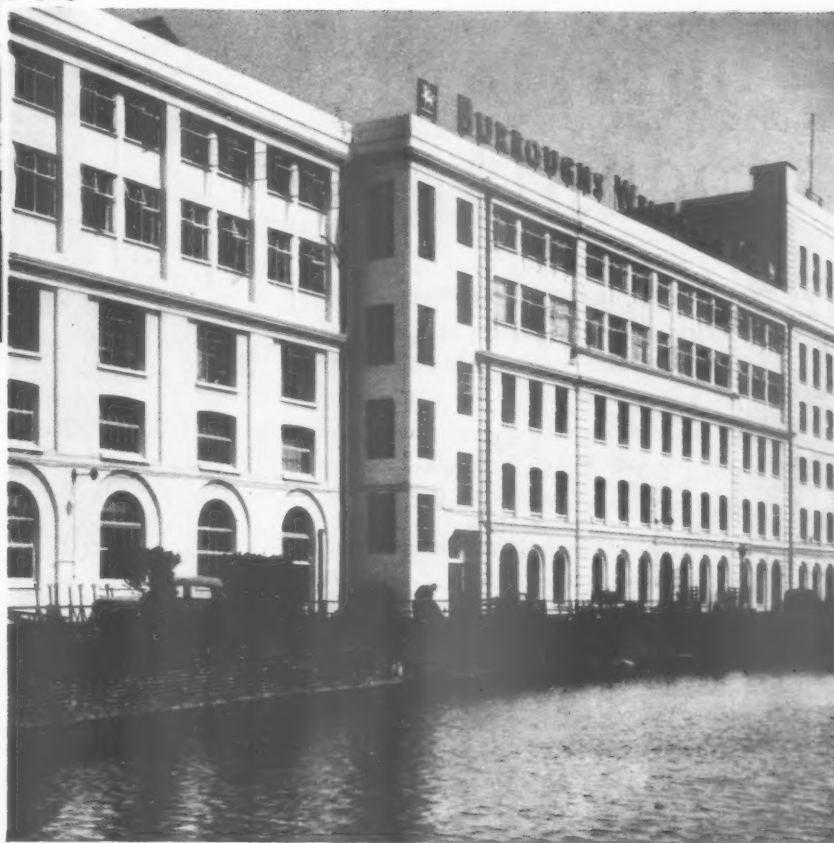
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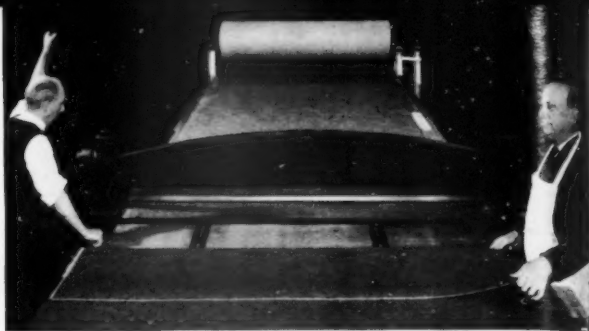
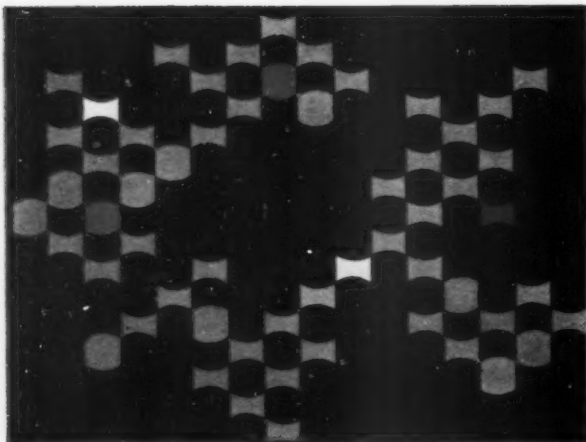


This is the second in a series of articles designed to interest and inform architects on the techniques and scope of linoleum opportunities open to them with modern linoleum floorcoverings.

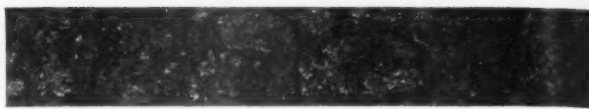
linoleum contractors' techniques

To an increasing extent in the last few years, flooring contractors have cut linoleum into tiles instead of laying it in the form of sheet; some of them say that they use tiles for 90% of their work. This article explains some of the reasons for the change and suggests ways in which the architect can turn this new flexibility to advantage.

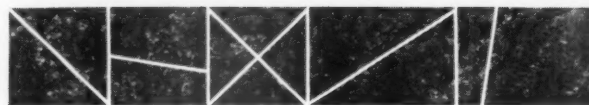
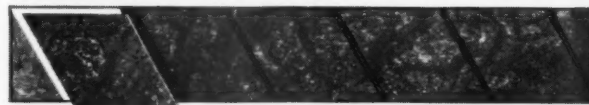
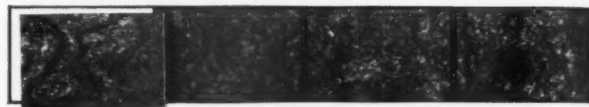
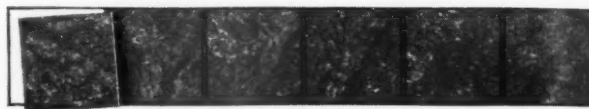
Linoleum in sheet form is still cheaper to lay when large unobstructed areas are to be covered; but when faced with complex outlines and central pillars, especially in cramped areas, flooring contractors have found that they can install tiles with very little waste of material, and at costs that are competitive with sheet linoleum. It is here that some knowledge of the contractors' techniques and working methods can help the architect to design interesting floors and still keep down costs.



Photos of guillotining and die-cutting: Courtesy E. J. Elgood Ltd.



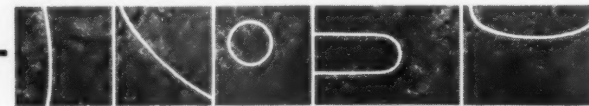
Cutting tiles The contractor uses a guillotine to cut 'slabs' of linoleum across the roll, wide enough to allow a small margin for trimming the tile later. The tiles themselves can be hand-cut by knife—a slow and expensive process—guillotined, or die-cut.



Guillotining Hand-operated or power-driven guillotines can cut squares, oblongs and triangles almost equally economically.



Die-cutting Some contractors have semi-automatic machines that cut tiles up to 18" square in one movement. These machines also accept special dies to cut other shapes—such as those below—simultaneously with the rectangular tile. (Both parts of the tile should be used in the design to minimise waste.) The design of such shapes should avoid running the shaped cutter into the corner of the tile, where it would create strong side pressures during cutting.



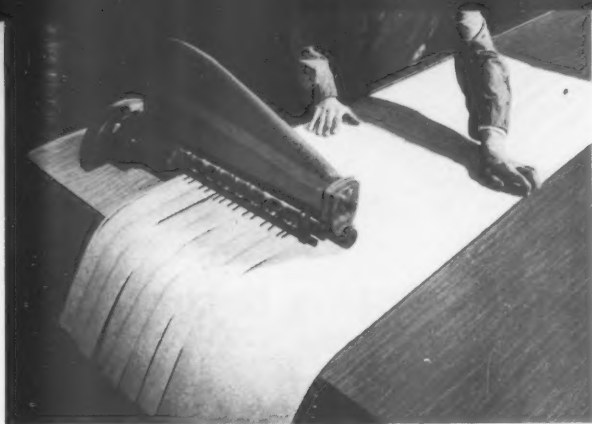
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Strip cutting Lacing strips and border strips, in widths ranging from $\frac{1}{4}$ -inch to 18 inches, are used to form decorative effects or borders. (For use as borders, they are cut slightly wide to allow for fitting to irregularities of the wall line.) The cutting machine slices almost through the thickness of the linoleum to make the strips, which are then finally separated as required by the layer on site.

Economical tile sizes Since linoleum is delivered in rolls 72 inches wide, contractors find the following sizes the most economical to cut:

NOMINAL: * 9 inches, 12 inches, 18 inches, 24 inches, 36 inches.

* Actual sizes are approximately $\frac{1}{4}$ -inch less than the nominal sizes of all purpose-cut tiles.



THE USES OF SHEET LINOLEUM

This article does not, of course, set out to show that tiles have entirely replaced the traditional way of laying linoleum in sheet form—even where the architect wants to introduce designs in his floor. Below are three ways of using sheet linoleum in individual situations:—

Hand-cut designs Linoleum is easier than most floor coverings to cut into individual designs, and cutting by hand offers the designer the greatest possible freedom of treatment in producing a spectacular floor like the one shown below. At such a focal point—it was, in fact, John Piper's 'Baroque Room' in *The Observer's* Film Festival—the extra cost would be amply justified.

Courtesy Design magazine



IH SYMBOL DESIGNED BY RAYMOND LOEWY
Courtesy International Harvester Company
of Great Britain Limited

Hand-cut motifs Most contractors employ craftsmen who will enjoy reproducing in linoleum a motif like this one, being laid in the entrance hall of International Harvester's offices in City Road, London.

Repeated motifs hand-cut by template For special purposes, the contractor can make a hardboard or metal template to cut out several motifs—and the corresponding spaces for them in the background colour.

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The new range of colours of Nairn Melotone Linoleum, consisting of 8 muted shades with softly blended marking, is illustrated on the right-hand edge of this page, together with a selection of colours from the plain and marble ranges in 4.50 mm gauge. A large selection is also available in 6.70 mm gauge. Please write for information to one of the addresses below or consult your technical representative.

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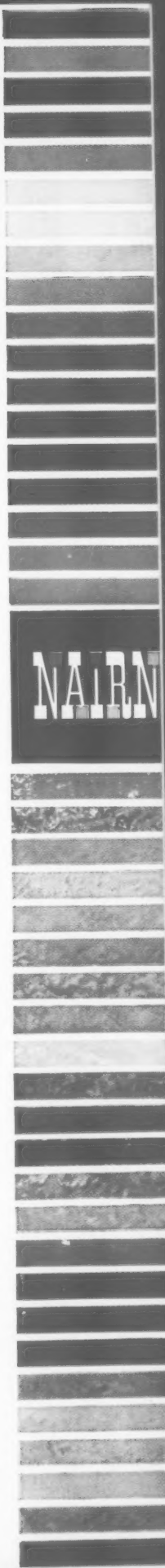
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BRISTOL 4: 349 Bath Road
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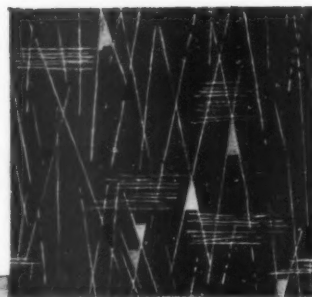
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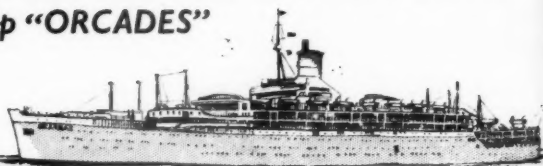


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The Architects' Journal

No. 3361 Vol. 130. September 17, 1959

9-13 Queen Anne's Gate, London, S.W.1. Whitehall 0611

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NOT QUITE ARCHITECTURE

New York in the Nineties

Jet travel, the expense account and other easy-travel devices, and sumptuous magazine presentations, have done so much to bring us into close contact with American building that modern New York really isn't news any more. But seeking relief the other day from a blistering 95-in-the-shade, your correspondent took refuge in the City of New York's own museum on Fifth Avenue and emerged, some hours later, nicely cooled, and full of information on the New York of 1895, as follows:

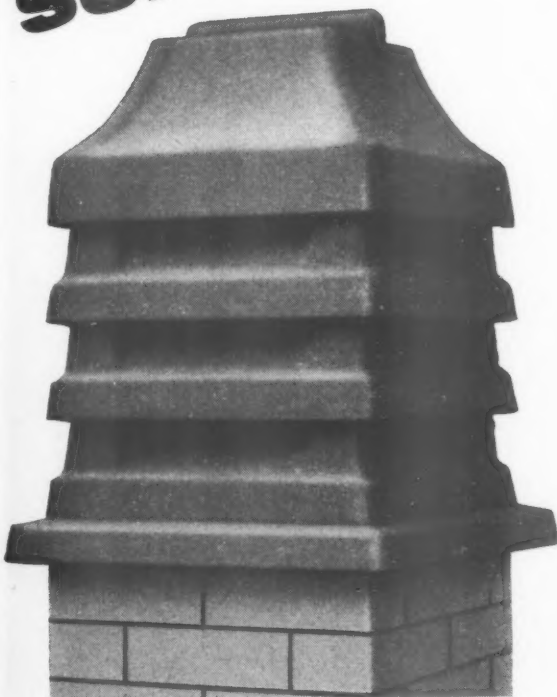
*

Then, as now, the traveller from Europe was offered a wide choice of trans-Atlantic transport. There were the American Line's *New York* and *Paris*, three-funnelled, twin-screwed, but still prudently schooner-rigged; Cunard competed with the *Campania* as re-assuringly robust and rotund then as the two *Queens* are now; North German Lloyd urged the magnificence of the smoking room of the s.s. *Spree*, a mélange of buttoned leather, carved and sombre woodwork, bevelled mirrors, plush curtains and oil paintings in the best gin-palace manner. The fastest crossing of the day, largely at the expense of the crockery and the passengers' comfort, was claimed by Hamburg-America, who held a land-to-land record of 6 days, 10 hours and 32 minutes. This company, presumably to entice prospective travellers doubtful of the utter safety of such ocean greyhounds, declared "these steamers do not carry cotton."

*

Notwithstanding the elegant comfort in which our traveller made the crossing, he

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blows
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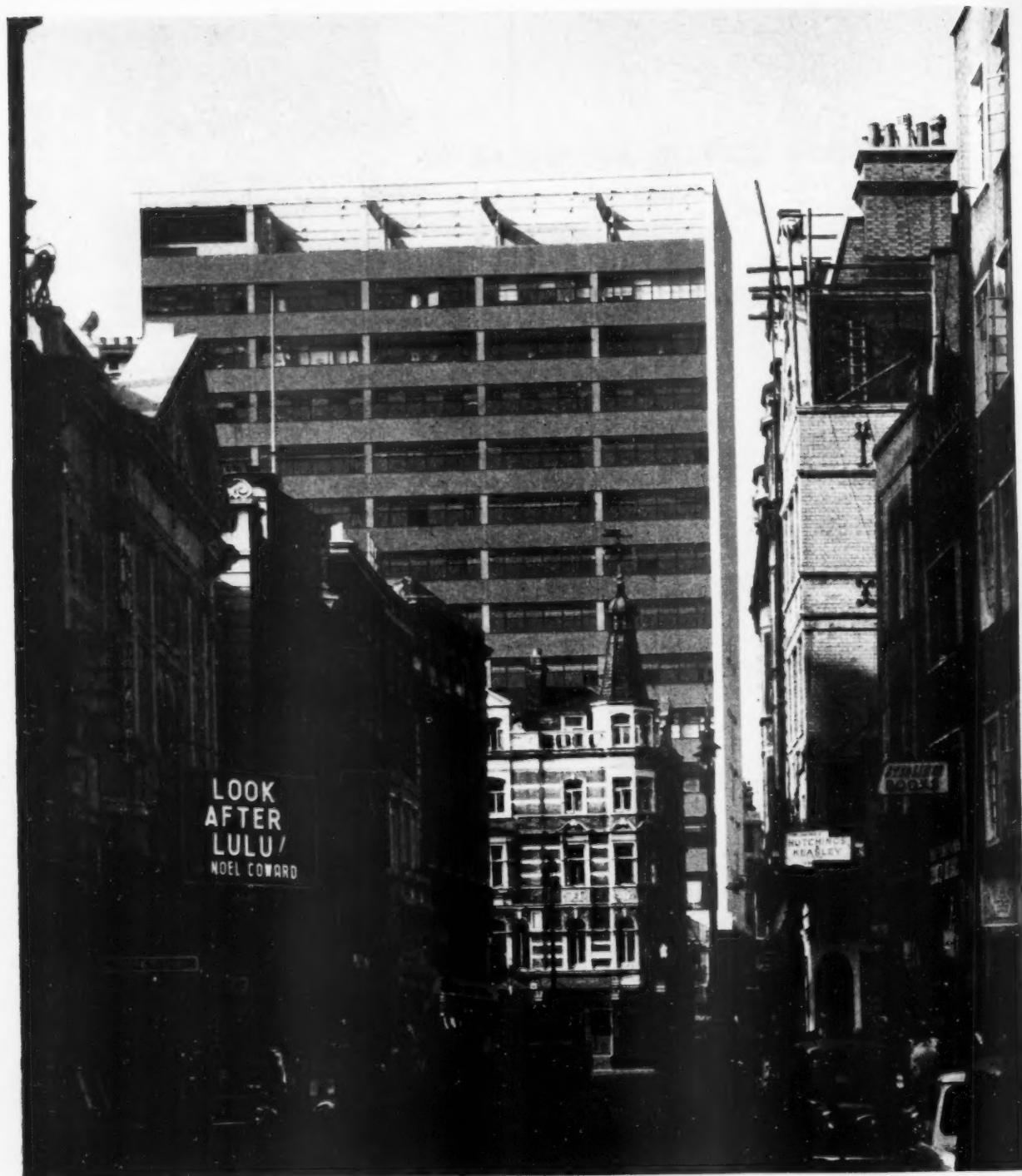


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Thorn House: A New London Landmark

Thorn House, the new head offices of Thorn Electric Co. Ltd. near Leicester Square, is small by comparison with some more recently commissioned offices, being a mere 185 ft. and 14 storeys high. But it brings a new scale and sharpness of definition to the London skyline, as this picture from St. Martin's Lane shows. Its sharpness of definition is not so apparent, however, from such an important thoroughfare as Whitehall, where Thorn House is not tall enough to rise clearly above the jumbled, skylight

littered roof of the National Gallery. In this case more would certainly have been better. Its owners are to be congratulated on building for their own times and rejecting the pretentious stylism still favoured by so many big firms. The offices will be illustrated and cost analysed (the first large office block to be so treated—a cause for further congratulations to the enlightened owners) in a further issue of the AJ. The architects are Basil Spence and Partners and Bovis Ltd. built it.

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was denied the convenience and excitement of landing directly in New York City. Instead, having paid his respects in passing to the newly-erected and *repoussé* figure of Liberty, known at that time as "Liberty Enlightening the World" he was decanted at Hoboken, an arid but thriving dockland waste on the New Jersey Shore, from which he crossed by ferryboat to the Manhattan side of the river having his first view of the panorama of water tanks and steam jets which then constituted the New York skyline.

Safely ashore at last he would find himself with a wide choice of hotels of varied appeal. Thus "the notable character of its guests, its immense public rooms and grand old parlours, broad halls and numerous stairways, whilst none of the 500 guest rooms are above the 4th floor." Or "exquisitely furnished coffee and smoking room, fitted up in Oriental style and illuminated at night by tiny electric lights covered by red shades, where guests of both sexes may retire, and, while the women sip their after-dinner coffee, the men may indulge in post-prandial cigars or cigarettes."

Another establishment claimed to be "the rendezvous of distinguished Europeans"; another, dealing a trump card, announced that, in order to reduce the danger of fire to a minimum, it had "removed its laundry, boilers, steam engine and dynamos to premises in an adjoining street, expressly for that purpose." By way of further assurance the notice added that ten tons of ice were manufactured and available daily in the hotel. The Holland House described itself as "a marvellously beautiful house in the swellest quarter of New York" and the Grand Union Hotel offered any of its 600 (fireproof) rooms at \$1.00 a day, or, with food \$2.50. A sinister comment in this and similar offers was the prevalence of advertisements for Lea and Perrins' Original Worcester Sauce.

Suitably housed and refreshed, our traveller would take his first stroll in the city, which at that time presented a rather run-down appearance, consisting as it did largely of streets lined with flat fronted 4- or 5-storeyed buildings, much like those of back-street Soho to-day, with taller buildings rising here and there, their party walls liberally pierced with windows regardless of adjacent owners' rights. Sun blind bonnets blossomed on every façade, and the constant fire danger showed itself in the innumerable fire escapes and fire hydrants which sprouted everywhere from wall and pavement.

ERIC BROWN

(To be continued)

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* To preserve freedom of criticism these editors, as leaders in their respective fields, remain anonymous.

The Editor

A NATIONAL CATASTROPHE?

A. G. POWELL, senior research officer of the Ministry of Housing and Local Government for the London region, exploded a bomb in the planning world when he delivered a paper to the British Association on "The Recent Development of Greater London" (see p. 206). He implies that the attempt to limit the growth of industry and population in Greater London and South-East England has not only failed, but should never have been made. This policy originated in the 1939 report of the Barlow Commission on the distribution of the industrial population, which concluded that the evils arising from the drift to London and the concentration of population and industry in the conurbations must be corrected by national and regional planning.

Mr. Powell now says that the economic background to that report is a thing of the past, and the planning based upon it (including the 1944 Abercrombie Plan for Greater London) is equally out-dated. Because, in his view, it is impossible to reverse the geographic and economic forces that are expanding the London conurbation, all that we can hope to do is to guide its expansion and prevent these forces breaking out indiscriminately.

Mr. Powell is right in thinking that economic developments since 1939 have changed the situation since the Barlow report. But the emergence of such new industries as electronics or the development of London airport do not mean that the basic causes of the expansion of employment and population in and around London have changed since 1939. Now, as then, the biggest single cause is the attraction of London as market, port and financial centre.

Mr. Powell is also right in thinking that if present trends continue the embryonic London conurbation, already 100 miles across, will be consolidated. Far from this proving that the Barlow report, or Abercrombie's stronger minority report, were wrong, it suggests that they were right. For Barlow, Abercrombie and the Scott report of 1942 emphasized that unless a strong enough planning machine was established the old trends would reassert themselves. Mr. Powell calls for a "revised regional plan" but omits to mention that no regional plan or planning authority exist.

The expansion of London is now happening at an alarming rate. But we cannot view it with complacency.

The facts he has disclosed reveal the need for fresh thought and energetic action, but certainly not timid surrender. We cannot accept the view that in locating industry "all other considerations" must take second place to the need to export. Modern transport and the universal availability of power, particularly in a small country, have in fact made it possible to distribute employment more widely than ever before.

The problems Mr. Powell has posed are real and urgent, their solution far from easy. But he himself, by saying that very substantial areas of new land will be needed to satisfy the demand for housing "unless an entirely new approach is made to the renewal of existing urban areas" has implied that controlled sprawl is not the only way out. To open the floodgates once more to urban expansion, and to create an American-scale conurbation in South-East England, would be a national catastrophe. The appointment of a new Barlow Commission, to consider what further powers and measures are needed to avert it, should be one of the first tasks the new government should undertake.



CURTAINS UP

It's pleasant to find a true tower block in central London at last—a building that isn't a collection of depressing cliffs and canyons of glass and stone. Thorn House, the new headquarters of Thorn Electrical Industries Ltd., doesn't copy outmoded methods of providing office space. It has good thermal and acoustic conditions and good daylighting, and a lot of thought has been given to the need for comfortable and invigorating

working conditions. Best of all, the high tower has been set in relationship to a two-storey showroom and open courtyards in such a way that somehow the human scale of the St. Martin's Lane area has been preserved.

A full account of the building, which was designed, of course, by Basil Spence and Partners (showrooms by John and Sylvia Reid), will be published—together with a detailed cost analysis—in a future issue of the JOURNAL.

FEET ON THE GROUND

Now that the Russians have hit the moon with a rocket, ASTRAGAL not only looks forward to a special issue on Lunar Architecture (there must be some tricky services problems when there's no atmosphere) but is more inclined than ever to believe the report of the Production Engineering Research Association's investigators, who have reported that Russia is 10 years ahead of this country in automation. The Russians seem to have their feet on the ground as well as the moon.

How much of this lag is due to the lethargy of manufacturers, and how much to obstructiveness by the unions I don't know, but since PERA has 800 members out of a possible 20,000, it can't all be from the operatives. Even more discouraging is the statement that Moscow's Centre for Scientific Information has 1,800 full-time scientists and translators at work on digests from

foreign periodicals. I wonder how many people at the DSIR work on digests?

KNIGHT-KNIGHT EVERYBODY

The architectural programme in Associated Rediffusion's series "The Artist in Society" sounds as if it will be a bright one. So far the cast drawn up for this 25-minute educational binge includes Sir Hugh Casson, Sir William Holford and sir, please sir, I know—Reyner Banham. The team is not yet complete.

But if your son is a sixth-former and has been waiting breathlessly for Associated Rediffusion's promised series, particularly the feature on industrial designers he is in for a disappointment. The producer tells me he has accepted advice not to do a separate programme on industrial design. A pity.

WATCH WITH FATHER

It had to happen. Just off the centre of Manchester you can see clusters of men glued to television screens on sections of wooden fencing. The fencing surrounds a building site, the television sets are only painted and the "screens" are observation holes which enable you to see how Granada are getting on with their new building.

GOING, GOING . . .

The Conservative Party's election manifesto matches the Labour Party's promise to spend £50 million a year on hospital building with a promise to double the current programme, which is £22.5 million. In other words, whichever party wins (assuming they keep their promises) something like £45 million a year will be spent on the hospitals. This, considering the scandalous state of the hospitals, is something to be thankful for.

In school-building and housing the Tories promise to continue their present policies (they would move another million people from the slums by 1965) and they would put the BRS, as part of the DSIR, under a Minister of Science. I have a feeling that the name of the Minister responsible for BRS matters rather less than the amount of money it has to spend. Will any party bid double the current programme, while ASTRAGAL is still in the "don't know" category?

INCONCEIVABLE?

People complain that architects live and think in watertight compartments, but the most watertight piece of thinking to come ASTRAGAL's way in recent weeks was in the *Radio Times*, where the music notes observed that Alban Berg's violin concerto was written immediately after the death of "Manon Gropius, the daughter of Mahler's widow by a second marriage." It seems inconceivable that anyone writing on, say, architecture, in the *Radio Times*, even though it is the most mass-circulating of all mass circulation magazines, would fail to draw attention to the name and fame of the father of Mahler's daughter, or Berg's (supposing they had any) if they were relevant to his theme, but do music critics *really* not know who Walter Gropius is, and what's famous about him?

WHY NOT?

Professor Hitchcock, passing through London on one leg of his annual European tour, put a hard question to ASTRAGAL but did not pause for answer. The question was this. "Why is it that, in all the argumentation over the merits and demerits of the various Churchill College projects—why is it that no-one has tried to compare the entries with the highly successful and entirely workable college recently designed by Le Corbusier? Not the *Maison de Bresil*, which is just an expensive hostel, but the monastery at La Tourette, which is, precisely a teaching college for some four-hundred students, complete with refectory hall, junior and senior common rooms, and the rest of it—except that the chapel is rather larger than Churchill College might require."

*

A very good question, too. Would someone care to answer it?

COLDISH FEET

Since trading agreements first had to be registered, more than a quarter of them (600) have been abandoned, 350 of them since the beginning of this year. The Registrar, talking to the British Association, said that a letter saying an agreement was to be referred to the Restrictive Practices Court often gave the signatories cold enough feet to scrap it. Fair enough, but it is not unreasonable to wonder how many have been formally thrown overboard but un-



The first-floor showroom at Thorn House. "See Curtains Up."

officially continued on an old boy basis. This certainly happened when agreements first had to be registered, and one may doubt whether it has stopped. Are architects still afflicted with tenders progressively $2\frac{1}{2}$ per cent more than the firm which has obviously been allocated to the job?

IT'S GREEK

Prior to his May visit to London, Professor Mies van der Rohe visited Greece for the first time. He climbed the Acropolis, mused among the ruins of Epidauros. It is reported that he found it all—architecture, sea and land—astonishingly up to all his wildest dreams. There was, however, one jarring note, and the story goes in Athens that on being shown the Acropolis floodlit—*son et lumiere* and all—for the Athens Festival, he growled to an American friend: "an architectural

catastrophe." He was instantly and delightedly understood by architects and other Greeks, to whom the remark was not only Greek (*mia arkitektonike katastrophe*), but if anything more devastating than in English.

*

However, floodlighting is seldom permanent, and Mies must have given a sigh of relief to realise that Greek poverty prevented his hero, Schinkel, from building a royal palace on the Acropolis between the Parthenon and the Erechtheion.

NO COMMENT

From Athens comes the news that the Gropius US Embassy, which goes ahead apace, is to be faced entirely with pentellic marble—from the same quarry as the Parthenon.

ASTRAGAL

A new system of classification

This article by the JOURNAL's Research Fellow for 1957, Dargan Bullivant, differs from previous articles* in the series in that it offers, not an assessment of needs, but a working tool. This tool is in the form of a new system of classification. This system is not the work of Dargan Bullivant alone, but is the result of a team of an international committee, the International Building Classification Committee (IBCC), set up for this purpose by the International Council of Building (CIB), of which Dargan Bullivant is a member. In fact, this international council is holding an International Congress at Rotterdam on September 21-25 at which Dargan Bullivant is to introduce the classification on behalf of the committee. JOURNAL readers, therefore, are receiving a pre-view of an international document of the first importance. Apart from this the JOURNAL Editors are very proud that the AJ Research Fellow's services should have found international acceptance. What is the standing of this classification system? What is its significance to the practising architect and to the JOURNAL's readers?

First, it must be pointed out that any system of classification must be proved in use and must be freely accepted by those whom it is intended to help: it is not something which can be arbitrarily agreed and enforced, as it were, "from above." In fact, the system described in these pages has been tried out on a fairly substantial scale, principally in Scandinavian countries. It is for each nation and, indeed, for each user to try it out for themselves. The fact that it is internationally proposed is a strong initial point in its favour and the JOURNAL Editors feel sufficiently confident in it to give it a trial. We do not propose to abandon forthwith our own system of classification (i.e. for Information Sheets, for Information Centre and for Working Details). Nor do we suggest that JOURNAL readers should do so. It is, however, our intention to print the new classification alongside the old for at least a trial period and we have also invited a small number of architectural schools and architects' offices (both public and private) to organize their filing systems on the new method and to report on its effectiveness. If any other JOURNAL readers would like to make this experiment and to keep the Editors posted on the result, they would be very welcome.

What does the new classification really amount to? This is described in Dargan Bullivant's introduction to the various tables. But for the reader who is completely at sea in this subject we make the following points.

* The Problem of Information before the Architectural Profession and the Building Industry, April 2; The Case for a Comprehensive Information Service, May 7; the Need for Standardization, May 28, 1959.

There is in existence a universal system of classification used internationally by librarians for all subjects. This is the Universal Decimal Classification: UDC, for short. It is, of course, possible to use this system for building also and, in fact, librarians can obtain a specialized list of headings applicable to building and which is known (rather confusingly) as ABC. The primary objection to the use of UDC (or ABC) for building is that, because it is geared to a universal system of knowledge, the different parts which the builder or architect want to find together are, in fact, dotted all over the place. Also, because of the fineness with which concepts have to be differentiated from one another, notations get very long and cumbersome. Take for example the case of concrete. The builder or architect wanting to check up something on concrete wants to have to turn to one place only (or, at a push, two): but UDC compels him to chase his facts in six or seven places. With this in mind the international committee conceived the idea of basing a new classification on the processes of thought actually used by those engaged in building, so that the items which are thought of together are classified together; and the system based on this was known as SfB, named after the Swedish committee which first compiled it. It was found convenient, however, only to apply this system to items and services which actually go to make a building. There are many other subjects, such as building law and, indeed, the different kinds of building (schools, libraries, etc.) to which those engaged in building wish to refer, but which cannot be treated in this way; and the international committee agreed that these

Subjects could still be classified in UDC.

The final system proposed is a composite system, part SfB, part UDC—an arrangement which is more logical and more manageable than might first appear.

What does this really mean to the average architect? For those who are disposed to be pioneers, it means a lot of hard work. For at first only material published in the JOURNAL will bear the new classification. When, therefore, they receive a piece of literature from another source, they will have to rack their brains to decide how exactly to classify it. They will be helped in this by the tables published with this issue and doubtless practice will make this easier. But no one could deny that this is an exacting chore. The real significance of this system will only become apparent when it is widely used by the producers of information: when, therefore, all material for filing is pre-classified. Then you will know exactly where everything should go. The effectiveness of this move depends, therefore, in the first place, on whether the international pundits have exactly hit off our needs, and in the second, on the speed with which the system is at least tried out by the producers of information—by such people as BRS and BSI, the trade associations and each separate manufacturer.

One word in conclusion: though we are glad to have had a hand in the promulgation of this system and are glad also to try it out, it is not an ARCHITECTS' JOURNAL System of Classification, but an international one. This is essentially a public concern and it is most important that everyone in all sections of the building industry give it intensive testing and support.

The AJ Fellowship: "Information for the Architect," 4

PROPOSALS FOR A STANDARD BUILDING CLASSIFICATION

by Dargan Bullivant

WHY CLASSIFICATION

The practitioners of building, architects, builders and quantity surveyors are under great pressure to build more, to raise standards and improve value for money. How to encompass the field of knowledge for such a job is an increasingly serious problem. Organized knowledge on a wide range of subjects is required. Much depends on the architect and the knowledge he can bring to bear during the design stage. Probably the ideal but impractical solution would be an encyclopaedia. The present flood of information from all sources is rather like tearing this ideal encyclopaedia into pieces and publishing it in hundreds of different places and in entirely different ways with the chapter headings missed off. Each practitioner is left to piece the book together without help.

The only way to handle information in an office is by a filing system, and a well ordered filing system

is a necessary tool of modern architectural and building management. The problem is how to make this a practical possibility for as many offices as possible. The first essential is the establishment of Building Information Standards. Recommendations for Size (A4 to BS 1311) and Pre-punching ($\frac{1}{8}$ -in. [80 mms]) and Fileability have been made. Recommendations and guidance for Classification and Filing are now made in the Building Filing Manual on pages 191-204. Classified publications of standard size and hole-punched would then have a place in the office filing system of all practitioners, as is common in America. In 1920 the American Institute of Architects published a Standard Filing System which is still used. Documents intended to be used are pre-classified by the producer to reduce filing to the simplest office operation. This American system is now near the end of its useful life and needs to be replaced, but the practice of pre-classification is an established method.

Fig. 1. An Office Reference Filing System. *Proposals for a standard Filing System are being tried out at the Architectural Association Library and the Swedish Institute of Building Document-*

ation. This illustration shows the actual filing system used in Sweden. The filing equipment and 99% of the papers were A4 (BS 1311).



THE WORK OF THE ARCHITECTS' JOURNAL RESEARCH FELLOWSHIP

A study of the requirements of a standard classification to form the basis of office filing was made by the Research Fellow on "Information for the Architect" and detailed reports to the AJ Research Board were made on the Universal Decimal Classification (UDC) widely used in special libraries, the American Institute of Architects Standard Filing System, the basis of American practice, and the Scandinavian SfB system.

The conclusion was that the UDC should be used for subjects of general knowledge such as Sociology, Law and specialist Engineering but that a simple system such as the SfB system was necessary for Elements, Components and Materials. The report of THE ARCHITECTS' JOURNAL Research Fellow was studied by members of International Building Classification Committee (IBCC), a joint committee of the International Council for Building (CIB) and the International Federation of Documentation (FID). In 1958, with the help of the Architectural Association, it was decided to put the results to the test by building a filing system as an example of an office system for use by the School of Architecture. Simultaneously, the work was carried further within the framework of an international study by a special team of the IBCC. The results of this work are now being presented to the 1st Congress of the International Council of Building at Rotterdam by THE ARCHITECTS' JOURNAL Research Fellow on behalf of the IBCC team so that a full discussion of the proposal can take place.

RECENT DEVELOPMENTS IN BUILDING CLASSIFICATION

An investigation into existing building filing systems was begun in 1957 by a working team of the IBCC. Information on 55 systems at present in use was collected and evaluated. Many of these were quickly eliminated, either because their standard was not high enough or because they had been prepared for some special purpose and were not suitable for general application.

This study confirmed the conclusions of THE ARCHITECTS' JOURNAL Research Fellow which were that the two most valuable systems in use at present were the Universal Decimal Classification for its range of subjects covered and the Scandinavian SfB system for its simplicity and flexibility and in particular its close relation to building practice.

DEFINITION OF THE FIELD OF BUILDING

An important conclusion of the study was that the field of building as the province of practitioners was covered by the following subjects: Types of Buildings (schools, churches, etc.) and the spaces within them, Functional Elements of Buildings (walls, floors, services installations and fixtures), Building Products (assemblies, components and raw materials) and building tools. A study of the publications used by practitioners for their daily work showed them to be covered by these subjects, with a small number of exceptions.

Related fields of activity about which practitioners may possess special interests are physical planning,

interior and landscape design, civil engineering and public health engineering. It was considered that a filing system for building should accept the classification for these subjects in use in these fields at present and not seek to present a new pattern.

CHARACTERISTICS OF THE BUILDING FIELD

The next step was to examine the publications in order to define the breakdown of subjects in the building field. Their characteristics were found to be:

1. Buildings (houses, schools, hospitals, etc.).
2. Rooms (living rooms, kitchens, laundries, etc.).
3. Functional Elements (walls, floors, services installations, fixtures).
4. Assemblies (windows, doors, taps, sinks, etc.).
5. Components (bricks, tiles, bars, pipes, sheets, etc.).
6. Properties (heat insulating, light reflecting, sound absorbing; porous, felted; solid, granular, mortar, fluid; adhesive, protective, explosive, etc.).
7. Materials (substances, metal, stone, wood, etc.).

It may quickly be seen that these characteristics when analysed form groups which can be combined together to give smaller and more closely defined subjects, e.g., walls of bricks; pipes of porous concrete; the thermal insulation of houses; kitchen floors.

Thus if symbols are given to a full list of such characteristics, a classification results. It was found, however, to be extremely complex although highly systematic.

The IBCC team then studied how to simplify the coding and found that a result very like the existing SfB was produced. The differences were not sufficiently large to warrant the introduction of an entirely new system.

CONCLUSION. A BUILDING FILING MANUAL

The requirements that a Standard Filing System for Building should aim to satisfy were considered to be:

1. The classification should be authoritative.
2. It should cover subjects of general knowledge such as, Law, Sociology, Science, by making use of UDC, which is widely used in special libraries.
3. The central core of subjects forming the practitioner's working knowledge and on which he will have most documents should be covered by a simple system closely related to building practice.
4. The filing numbering system or notation should be as simple as possible so that the large number of producers of information can be persuaded to pre-classify their publications.
5. The system as a whole should be suitable for information about building products from trade or non trade sources and technical studies, digests, periodical articles so that only one system for filing information was needed.

It should be usable for a small filing system for a student or single practitioner and a medium to large system for a big office.

The results of the studies by the IBCC team and THE ARCHITECTS' JOURNAL Research Fellows is that these requirements are most likely to be met by a combination of the UDC and SfB systems. The details of this proposal are presented on pages 191-204 in a proposed Building Filing Manual.

* Michael Ventris, 1956; D. Bullivant, 1957.

BACKGROUND HISTORY OF UDC AND SFB CLASSIFICATIONS

The Universal Decimal Classification (UDC)

The Universal Decimal Classification is an internationally standardized extension of the Dewey decimal system which was introduced in the United States by Melvil Dewey in 1873. It is widely used both by librarians for the arrangement of books on their shelves and for general documentary purposes.

Administration by International Federation (FID)

The UDC committee of FID has various sub-committees for special subjects, the one dealing with building is the International Building Classification Committee (IBCC); chairman, architect L. M. Giertz. The British Standards Institution is the national body responsible for UDC administration in this country and this has in turn panels of specialists to look after extensions and revisions. The Panel 69/72 (on building, physical planning and architecture) has been working since 1948, and consists of members of the RIBA, MOW and AA Libraries.

Chief Users of Building Sections in Britain

The Library of the Royal Institute of British Architects adopted the UDC in 1932 and the MOW Library in 1944 and the AA Library in 1946.

ABC Version in English for Practitioners (1955)

When it was decided to adopt the UDC in the Ministry of Works library in 1944 there was virtually no UDC table available. The French second edition was out of print, no English edition had been issued and the German edition was inaccessible. The Chief Librarian of the Ministry of Works, Agard Evans, compiled a selection of the UDC numbers which he thought would be required for the Ministry of Works. The first edition of this MOW—selected UDC was issued in April, 1945. Errors were corrected and additions made in 1946. The publication of the English Abridged Edition BS 1000a BSI in 1948 makes it possible to amplify the schedule still further. In 1949 an International Conference on Building Documentation was held in Geneva under the ægis of the Housing Sub-Committee of the United Nations Economic Commission for Europe (ECE); chairman, Robert Fitzmaurice. This conference decided to use the UDC for the exchange of abstracts. In order to ensure reasonable uniformity in practice it was decided that a selected schedule should be compiled on the lines of the Ministry of Works schedule.

After study by representatives of 11 nations, the *Abridged Building Classification (ABC)* was introduced for the International Council for Building (CIB) in agreement with the FID.

Abridged and Full UDC Tables in English

The first Abridged English edition (edited and published by the British Standards Institution) of the full tables BS 1000a, 1948, has since been revised and brought up to date and published as BS 1000a, 1957. A *Full Edition in English* has not yet been published,

although the Section 69 BUILDING has just been published separately in 1958 as BS 1000 (69).

THE SFB SYSTEM

This system was evolved in Sweden during the years 1946-1950 by the Technical Secretariat of the Coordinating Committee for Building. It was designed as a compliment to the UDC for such purposes as:

1. The arrangement of the contents of Bills of Quantities and Building Specifications and Data of Building Prices.

2. The filing of technical information in the office, particularly product information.

3. The filing and referencing of working drawings.

In 1950 three important publications were started using the system:

1. *Bygg-AMA*. A general specification for building, setting down recommended specifications for work to be used as a standard in all contract specifications; reference is made to the specification clauses by means of the classification e.g. brick work **Fg2**.

2. *Aktuella-Byggpriser*. A loose leaf book of data on rates and prices of building work. It was published by The Central Office of the Swedish Association of Architects (SAR). The loose leaf sheets are classified by the Sfb system.

3. *Byggkatalogen*. A comprehensive catalogue of trade products. The technical information in the catalogue is edited and published every two years by the Swedish Building Centre—Svensk Byggtjänst.

By the extensive application of the system in this way it was found possible to co-ordinate products, prices and specifications of work on the same basis. For example, Bills of Quantities and accounts place bricks in **Fg2**. The architect finds information on bricks in file reference **Fg2** and his specification refers to bricks under **Fg2** and the contractor keeps his costing information under **Fg2**.

Since 1950 experience of the system in use has increased and confirmed its practical value. It has been studied by organizations in Denmark, Finland and Norway and has been recommended and adopted for similar purposes. The Finnish Building Information Service published by the Institute of Architects (SAFA) has adopted the system and also the Norwegian Building Information Service published by the Research Institute and Building Centre. It has been closely studied in Denmark and recommended as a co-ordinating system.

Scope of the System

The system is based on three tables defining:

1. Functional elements Sfb table I (see page 194).
2. Building operations and products Sfb table II.
3. Materials Sfb table III.

The tables are combined together to compose a reference e.g. (21) walls, **F** bricks, **g2** clay, to give a reference (21) **Fg2**.

It can be used for the referencing and filing of trade catalogues, periodical articles, technical digests and working drawings, and it is also used for the arrangements of exhibitions of building products, for example the Finnish Exhibition of Building Materials.

A BUILDING FILING MANUAL

Recommendations for standard practice in Preclassification and Filing

By a working team of the International Building Classification Committee

SfB File No.	A
UDC No.	025-4

INTRODUCTION

An investigation on building filing systems was started by the International Building Classification Committee, the IBCC, in 1957. The work was carried out by a team consisting of the following: Dargan Bullivant (England), Dan Fink (Denmark), L. M. Giertz (Sweden), M. Mole (Yugoslavia), R. Molgaard-Hanson (IBCC Secretary), B. M. Skorow (USSR) and O. Stach (Czechoslovakia).

The report of the team is being presented to the 1st. Congress of the International Council of Building, CIB, at Rotterdam during September 21-25. The report includes this proposed Building Filing Manual.

THE PURPOSE OF THE MANUAL

To help the flow of information from those who have it to those who can use it. In particular to:

1. Give guidance to the practitioners, architects, builders, quantity surveyors, on keeping an office reference filing system for all information coming into the office from manufacturers, periodicals and research organizations.
2. Enable producers of information to put a filing number on their publications so that they will fit into the practitioner's files.

SCOPE

The system of classification contained in the manual can be used for manufacturers' catalogues, periodical articles, digests, bulletins and research reports.

It can be used for a small personal filing system for a student or individual practitioner, a small office system or a large office system.

Although it is intended principally as a filing system, it can be used successfully for indexing the contents of catalogues, architect's specifications, bills of quantities, accounts and exhibitions of products.

These proposals are based on the experience of the Scandinavian countries in using the SfB system which was worked out in Sweden in 1946-1950 and the UDC system widely accepted in libraries and in use for classifying non-trade publications.

STANDARD PRINTING FOR FILE NUMBERS

All publications for filing should have the Filing Reference printed in a box on the top right hand corner of the front page or each page of a loose leaf publication. See the panel at the top of this page.

AN ACCOUNT OF THE SYSTEM

For ordinary filing purposes it is best to consider first publications on subjects which actually figure in a building and which are, therefore, classifiable by SfB. Here the most important symbol will be a number in a bracket, *e.g.* (1). See table I, page 194. Each file in the cabinet relating to published material of this sort will have a number in a bracket on the back. These bracketed numbers are organized on a system which is rather similar to that used in the universal decimal system in that the first digit always signifies a broad category and the second digit signifies a narrower category within the broad category. In UDC this process can go on indefinitely, giving a long string of numbers. In SfB, for simplicity's sake, there are never more than two numbers within a bracket. Thus (1) signifies "ground," *i.e.*, all constructional parts of a building or of a building's surroundings which either lie on the ground or below ground. Thus (11) signifies earth shapes, mounds; (12) signifies drainage below ground, also manholes and covers; and so it goes on up to (19) which signifies "special protective work." These bracketed numbers give a key to the whole structure of the SfB system. Only eight out of nine simple digits have been used in the division of a building's anatomy, for (9) is used to signify buildings as a whole, *i.e.*, what we should call building types, though these are probably more effectively classified by the UDC notation. We are at the moment only concerned with (1) to (8). These are as follows:

- (1) Ground
- (2) Primary elements. Structures
- (3) Secondary elements (*e.g.*, windows and doors, etc.)
- (4) Finishes
- (5) Services installations (sanitation, heating and ventilation)
- (6) Services installations (electrical and mechanical)
- (7) Spaces, fixtures and equipment. General (*i.e.*, common to most buildings, *e.g.*, cloakrooms, entrances, etc.)
- (8) Fixtures and equipment. Special (*i.e.*, limited to one type of building, *e.g.*, laboratory benches)

Though the precise meanings of some of these can only be understood by considering the sum of the items which are contained within them, it will be seen that every single item which goes to make a building can be comprised within these eight heads.

An examination of the full tables shows that the principle of compulsory differentiation—again for simplicity's sake—has not been carried very far. Groups of related subjects often carry the same bracketed numbers. Thus:

- (14) Roads, paths, paved areas. General
- (14) Paving, brick and stone
- (14) Paving, asphalt, tarmacadam
- (14) Paving, hoggin, gravel, surface dressing
- (14) Path paving (including kerbs, steps)

It will be seen that the name on the file and not a symbol is used as a means of subdivision.

If you wish to differentiate your subject matter still further, there are two ways of doing it. The first is to sub-divide according to a type of operation. The types of operation are set down in Table II (page 194), though it must be admitted that the operational character of the headings (lettered from A to X) is not always apparent from their titles but may be deduced from the nature of the products handled.

The purpose of these capital letters is to give users the opportunity of sub-dividing their material according to *operations* (i.e., to work of a special character), whether these operations correspond to a self-contained traditional trade, like plastering or whether their character is determined by the nature of the components handled (e.g., bricks and blocks, sections and bars). Thus information about the operation and about the products used in the operations can be filed together.

The second kind of sub-division is by materials, when a lower-case letter is used. These letters are given in Table III. Since there are more materials used in buildings than there are letters in the alphabet, the small letters are only used in the main classes and where necessary a letter is followed by a numeral (unbracketed) to indicate a material within the class. Thus:

- d Metal
- 1 cast iron; 2 wrought iron, steel; 3 steel alloys, stainless steel; 4 aluminium and aluminium alloys; 5 copper; 6 copper alloys, bronze, brass; 7 zinc; 8 lead

The advantage of these two methods of sub-division is that they enable the user to gather quickly all files relating either to an operation or to a material. Further, the use of capital and lower-case letters in place of numerals makes it easier to memorize the principal categories. Thus you soon learn that any file with a capital T on it has to do with flooring, and that one with a lower-case e has to do with stone. Even a relatively complex Sfb notation, as for instance (43)Ti (signifying Finishes, floor (43), Operation of flooring T, i wood) is much easier to memorise than the corresponding UDC number 69.025.351.3.

We have been dealing up to now with items which can be associated with certainty with one or other of those aspects of a building described in (1) to (8) inclusive. But there are a number of subject matters which cannot be treated in this way. One class of subject is that relating to actual building types. We have already seen that the symbol (9) has been allocated to these in the Sfb system and the different building types themselves must be differentiated by UDC numbers (see the centre shelf, Fig. 8).

Much the same problem occurs with a number of general subjects which concern the architect, such as engineering, physical planning, etc. These are dealt with by Sfb as subjects which precede the operations of building and, in fact, the first three letters of the alphabet, capital A, B and C have been set aside for them. Once more, however, Sfb does not subdivide and it is left for UDC to fill the gap according to the user's needs. Since these are subjects which belong equally to other fields it was thought reasonable to let them be classified by a universal system.

Up to now we have been assuming that all material on operations will be filed under functional elements, that is, that it will be designated as a suffix to a figure in brackets (e.g., (43)Hi, Finishes, floor, wood strip). But it may be found more convenient to group these not under functional elements, but by operations. In other words, to drop the figure in brackets and to file under the operation as represented by the capital letter.

A third class of information which does not fit anything which has gone before is that relating to products for general use, such for example as aggregates, mortars or glues, or to the nature of materials in general. This class, too, has been given a capital letter—D—to which, if you wish, you may add a lower-case letter (and a numeral) to designate each separate material.

HOW TO CLASSIFY

Those classifying a given piece of literature have to ask themselves a certain number of questions in a certain order. If the piece of literature relates to a product, they must first ask themselves if it can be identified with certainty with one of the "functional elements" described in (1)-(8) see Table I. They must next consider whether it belongs, exclusively in one of the operational sequences indicated by capital letters E to X. Lastly they must consider whether it relates to one of the categories of material represented by lower case a to lower case w. It will be noticed that the product need not (and most probably will not) have a digit under each of these three heads. The principle on which classifiers must proceed is a principle of exclusion. If a leaflet deals with a product which can be made both of wood and of metal, then it cannot have a material digit. When an aspect is excluded in this way, the digit is normally just missed out. The only variation from this rule occurs when a product cannot be allocated either to a functional element or to an operational category. This can only occur (in the range of products) when a product is a material which is used in more than one functional element and in more than one operation (e.g., sand). Since there are no groups of files headed with lower case letters, it was necessary to create a group for such cases and, as has been mentioned above, this group has been given the capital letter D. A leaflet on the properties of sand would, therefore, be designated Dpl (D being materials general; P being fill, aggregate; l being aggregates, sand, gravel, shingle, crushed granite, shale, vermiculite).

The same kind of problem is raised by literature on general subjects which cannot be classified under any of the three categories. The most commonly met examples of these are functional studies, *e.g.*, lighting, heating, etc. To cope with these the devisers of the system have reckoned that subjects of this kind are preliminary subjects and they have, therefore, allocated the first three capital letters, **A**, **B** and **C**, to them. This allocation has been sub-divided as follows:

- A** Generalities, Engineering, Planning, Design
B Organization, Economics, Site Plant and Tools
C Soil Examination, Excavation and Ground Works

Obviously these headings are very rudimentary and it is suggested that those who wish to create further sub-divisions should use UDC classifications. The system as a whole is essentially a partnership between SfB and UDC: UDC classification will continue to be in general currency and it is suggested that *all* number panels on trade literature should give a space for both.

Check list for classification : five points

A method of finding the right classification is to ask the following questions always in the same order and file under the first heading it fits correctly.

Does the information relate to a :

- (1) **BUILDING TYPES**, *e.g.*, a school, church or a house?

If it is a report, a review or a functional or planning study of a specific building, it is classified under the *building type*. Building Types are classified under (9) (Table I).

If it is a special aspect, Sociological, Legal, Educational, it belongs under those subjects, for which see **A** (Table II).

- (2) **FUNCTIONAL ELEMENTS**, *e.g.*, structure, wall, roof, services or fixtures.

If it gives examples or working details, construction or installation information actually about the element itself, *e.g.*, details of wall construction of bricks as distinct from bricklaying or brickwork and the bricks, classify it under the *elements*.

All products used only for one element, windows, doors, boilers, kitchen equipment, always should be classified under *elements*.

Elements are classified under (1)-(8).

- (3) **COMPONENTS**, *e.g.*, bricks, blocks, sections, pipes, and

BUILDING OPERATIONS, *e.g.*, concreting, bricklaying, masonry, steelwork erection, pipe work, painting, etc.

Components which can be used for more than one element are classified here.

Information about the nature of the work, methods, techniques, processes, as distinct from the *element* of the building the methods are used for, come under the *operations*.

Components and operations are classified under E-V (Table II).

- (4) **MATERIALS**, *e.g.*, wood, stone, metals, etc.

If the nature of the material, its types, characteristics, methods of working it are treated rather than the *components*, *e.g.*, blocks, pipes, sheets which it can be made into, then the best classification is under the name of the *Material*.

Products for general use in several elements on building operations such as lime, cement, aggregates, sand, bitumen are classified here.

Materials ("the substance") classified under **D**.

- (5) **OTHER SUBJECTS** are classified by UDC, with a pre-grouping under the letters **A.B.C.D.**

A Generalities, Sociology, Law, Science, Engineering, Planning,

e.g., Geology **A**
55

B Organization, Economics, Sitework, Plant,

e.g., Time and Progress Schedules **B**
69·001·2

C Earthwork,

e.g., Excavation **C**
624·133

UDC classified documents may be given their correct pregrouping letter by reference to the table below.

A	B	C	D
0			GENERAL
30			SOCIOLOGY
331			LABOUR
332			PRIVATE FINANCE
333			LAND AND PROPERTY
334			BUILDING SOCIETIES
336			PUBLIC FINANCE
338			PRODUCTION
34			LAW
35			PUBLIC ADMINISTRATION
36			SOCIAL WELFARE
368			INSURANCE
37			EDUCATION
38			STANDARDISATION
5			SCIENCE
6			TECHNOLOGY
61			PUBLIC HEALTH
62			ENGINEERING
620·1			ENERGY
621			STEAM ENGINEERING
622			PRODUCTION OF MATERIALS
624			STRUCTURAL ENGINEERING
624·131			SOIL MECHANICS
628			PUBLIC HEALTH ENGINEERING
65			ORGANISATION
66			PRODUCTION
67/68			MANUFACTURE
69·0			BUILDING GENERAL
699·8			INSULATION, PROTECTION
711			PLANNING
712			LANDSCAPE
72			ARCHITECTURE
74			DESIGN

AN ALPHABETICAL INDEX

An alphabetical index to the main tables is a valuable aid to using the manual and consideration is now being given to its preparation.

WARNINGS

If the above rules are followed, it should be possible to classify most documents needed by practitioners correctly. However, there are always a number of documents about mixed subjects which prove difficult. There are three possible courses,

1. Decide on the most important aspect and file under that.
2. Get more than one copy and file in several places.
3. Take it apart if it is possible.

The File No. should always be printed accurately.

BUILDING FILING MANUAL: SFB TABLES

SfB TABLE I: FUNCTIONAL ELEMENTS

- (1) GROUND
- (11) Mounds. Earth shapes
- (12) Ditches. Ducts. Drainage, soil and rain water, below ground
- (13) Retaining walls
- (14) Roads. Paths. Paved areas. Steps
- (15) GARDENS: GENERAL. Lawns. Planted areas. Ponds
- (16) FOUNDATIONS: GENERAL
- (17) Pile foundations
- (18) Footings. Beam and arch foundations
- (19) FOUNDATIONS: SPECIAL
- (2) PRIMARY ELEMENTS. STRUCTURES
- (20) ACCESSORIES. FIXING ACCESSORIES
- (21) WALLS. EXTERNAL WALLS
- (22) WALLS. INTERNAL. PARTITIONS
- (23) FLOORS. GALLERIES
- (24) STAIRS. RAMPS
- (25) CEILINGS. SUSPENDED
- (26) FLAT ROOFS. BALCONIES
- (27) ROOFS
- (28) ELEMENTS ABOVE ROOF
- (3) SECONDARY ELEMENTS
- (30) ACCESSORIES. IRONMONGERY
- (31) WINDOWS
- (32) DOORS. EXTERNAL AND INTERNAL. HATCHES. GATES
- (33) FLOOR GRILLES. MACHINE FOUNDATIONS
- (34) HANDRAILS. BALUSTRADES. LADDERS
- (36) GLASS BLOCK LIGHTS. PAVEMENT LIGHTS
- (37) ROOFLIGHTS. ROOF TRAPS, ETC.
- (38) GUTTERS. DOWNPIPES. ROOF RAILS. CLEANING RAILS. ROOF GANGWAYS, ETC.
- (4) FINISHES
- (40) ACCESSORIES
- (41) FINISHES, EXTERNAL
- (42) FINISHES, INTERNAL
- (43) FINISHES, FLOOR
- (44) FINISHES, STAIR
- (45) FINISHES, SILL AND LINING
- (46) FINISHES, TERRACES
- (47) FINISHES, ROOFS
- (48) FLASHINGS
- (5) SERVICES INSTALLATIONS (SANITATION, HEATING AND VENTILATION)
- (50) ACCESSORIES
- (51) INSTALLATIONS, REFUSE DISPOSAL
- (52) INSTALLATIONS, SANITATION
- (53) INSTALLATIONS, WATER SUPPLY, HOT AND COLD
- (54) INSTALLATIONS, GAS
- (56) INSTALLATIONS, HEATING
- (57) INSTALLATIONS, AIR CONDITIONING AND COOLING
- (6) SERVICES INSTALLATIONS. (ELECTRICAL AND MECHANICAL)
- (60) ACCESSORIES
- (61) DUCTS
- (62) INSTALLATIONS, ELECTRICAL. LIGHTING AND POWER
- (64) INSTALLATIONS, SIGNALLING, TELECOMMUNICATION, RADIO, TV
- (66) INSTALLATIONS, LIFTS AND ESCALATORS AND OTHER MECHANICAL INSTALLATIONS
- (68) INSTALLATIONS, SPECIAL. LIGHTNING CONDUCTORS, SPRINKLERS AND OTHER FIRE FIGHTING INSTALLATIONS. TUBES COMPRESSED AIR. VACUUM CLEANING SYSTEMS ETC.
- (7) SPACES, FIXTURES AND EQUIPMENT: GENERAL
- (71) ACCESSORIES
- (71) FIXTURES, ENTRANCES
- (72) FIXTURES, ORDINARY ROOMS (SHELVES, CUPBOARDS, ETC.)
- (73) FIXTURES, KITCHEN AND ACCESSORIES
- (74) FIXTURES, BATHROOMS, CHANGING ROOMS, CLOAKROOMS
- (75) FIXTURES, LAUNDRIES AND DRYING ROOMS
- (76) FIXTURES, CLEANING CLOSETS, WARDROBES, STORES
- (77) FIXTURES, GARAGES, GENERAL STORES, ETC.
- (78) EXTERNAL FIXTURES (SEATS, SANDPITS, SCREENS)
- (8) FIXTURES AND EQUIPMENT: SPECIAL
- This is the place for items special to one building type
- (9) BUILDINGS

The three tables on this page give the structure of the SfB system alone. The list on the opposite page gives the main headings of a system of filing based on the joint use of SfB and UDC. On pages 196-204 is a complete set of tables giving the actual file headings to which this joint use of two systems gives rise.

SfB TABLE II: CONSTRUCTION

Operation	Products
A GENERALITIES. ENGINEERING. PLANNING. DESIGN	
B ORGANIZATION. ECONOMY. SITE PLANT AND TOOLS	
C SOIL EXAMINATION. EXCAVATION AND GROUND WORKS	
D MATERIALS GENERALLY: AGGREGATES. BINDERS. MORTARS. BITUMEN. CHEMICALS, etc.	
E CONCRETING	FORMS, REINFORCEMENT
F BRICKWORK, MASONRY	BRICKS AND BLOCKS
G ERECTION	HEAVY UNITS
H ASSEMBLY	SECTIONS AND BARS
I PIPE WORK	PIPES AND TUBES
J WIREWORK	WIRES, MESH. SUNDRY SECTIONS
K INSULATING	INSULATING MATERIAL
L COATING (asphalting, etc.)	FOILS. BITUMINOUS FELT, etc.
M SHEET WORKING	THIN PLAIN SHEETS (metal sheets and similar)
N ROOFING, SIDING, etc.	CORRUGATED SHEETS. SLATES. SHINGLES. TILES, etc.
P PLASTERING	LATHS AND PLASTERS
Q ACOUSTIC TREATMENT	SOUND ABSORBING MATERIALS
R GLAZING, SHEETING	RIGID PLAIN SHEETS (plaster board, plywood, sheet glass, etc.)
S TILING	BUTT JOINT TILES AND MOSAIC. STONE CLADDINGS
T FLOORING (special)	SPECIAL PRODUCTS FOR FLOORING (other than E.H. and S.)
U FACING (special)	SPECIAL PRODUCTS FOR FACING (other than N/S)
V DECORATIONS. PAINTING	WALL PAPERS. PAINTS, VARNISHES
X INSTALLATION OF	ELEMENTS AND ASSEMBLIES

SfB TABLE III: MATERIALS

- a generally
- b aids for the work
- c execution of work other than building
- MATERIALS
- d/o are used for materials in solid form, e.g., bricks, blocks, pipes, etc.
- d metal
- 1 cast iron. 2 wrought iron, steel (also galvanized, enamelled, etc.). 3 steel alloys, stainless steel. 4 aluminium and aluminium alloys. 5 copper. 6 copper alloys, bronze, brass. 7 zinc. 8 lead
- e stone, natural
- 1 granite and similar rocks. 2 marble. 3 limestone. 4 sandstone. 5 slate
- f concrete, artificial stone (with lime or cement in solid blocks)
- 1 sand lime concrete. 2 cement concrete. 3 terrazzo. 4 lightweight concrete
- g clayware, ceramics
- 1 cob, pise, adobe. 2 heavy burnt clay. 3 terracotta, faience, earthenware. 4 stoneware, semi-vitreous ware. 5 vitreous material, porcelain. 6 fire resistant material, refractory ware. 7 chemically resistant material
- h other mineral materials (in solid blocks and sheets)
- 1 asbestos cement, asbestos. 2 gypsum. 3 magnesite
- wood
- 1 timber, including rotproofed. 2 softwood. 3 hardwood. 4 plywood, blockboard
- j organic fibre (in boards, etc.)
- 1 wood fibre, wood shavings. 2 pulp. 3 organic fabric. 4 corrugated paper
- k other organic materials (in solid products, slabs, sheets)
- 1 cork. 3 wood wool cement. 4 reeds, straw. 5 peat
- m felted materials, etc.
- 1 mineral wool. 2 organic. 3 organic wool wadding, wool, hair
- n plastic, composition, linoleum, rubber
- 1 asphalt, including "thermoplastic" composition. 2 impregnated fibre and felt. 3 bituminous fabric. 4 linoleum. 5 rubber. 6 plastic
- o glass
- p/v are used for formless masses and fluids
- p loose fill, aggregates
- 1 stone aggregate, sand, gravel, shingle, crushed granite, shale, vermiculite. 2 crushed clay bricks, lightweight concrete and similar. 3 granulated slag, clinker. 4 ash. 5 shavings (including seaweed, wood wool, paper wool). 6 powder. 7 wool, mineral glass
- q mortar (with lime or cement)
- 1 lime. 2 cement. 4 mortar, concrete mass (including coarse stuff for rendering, screeding). 5 terrazzo. 6 lightweight concrete
- r gypsum plasters, magnesite
- 1 clay, mortar, fire resistant mortar, chemical resistant mortar. 2 gypsum. 3 magnesite. 4 synthetic resins
- s bituminous material, tar, asphalt, etc.
- 1 bitumen, pitch, tar. 2 bitumen solution and emulsion. 4 mastic asphalt. 5 asphalt, bitumen macadam and tar macadam
- t/w agents, chemicals, etc.
- l fixing materials, adhesives, mastics
- 1 welding material. 2 soldering material. 3 adhesives. 4 putty, mastics, jointing material, etc.
- u protective materials
- 1 means against corrosion. 2 admixtures for concrete, etc. 3 means for rot proofing and insect attack prevention. 4 means for fire proofing. 5 means for treating of floors, wax. 6 water repellent finish. 8 surface means for diffusion proofing
- v oils, waxes
- w chemicals

BUILDING FILING MANUAL : OUTLINE TABLES

SFB + UDC FILING SYSTEM FOR BUILDING

- (1) (9) **FUNCTIONAL ELEMENTS AND BUILDINGS**
- (1) **GROUND**
11 Earth 12 Drainage 14 Roads 15 Garden 16 Foundations General 17 Piles 18 Footings
- (2) **PRIMARY ELEMENTS. STRUCTURES**
21 Walls 22 Walls internal 23 Floors 24 Stairs 25 Ceilings 26 Flat Roofs 27 Other Roofs
- (3) **SECONDARY ELEMENTS**
31 Windows 32 Doors 33 Floor grilles 34 Handrails 36 Block lights 37 Rooflights 38 Gutters. Pipes
- (4) **FINISHES**
41 External 42 Internal 43 Floor 44 Stairs 45 Trim 46 Flat roof 47 Other roofs 48 Flashings
- (5) **SERVICES. SANITATION. HEATING. VENTILATION**
51 Refuse disposal 52 Sanitation 53 Water 54 Gas 56 Heating 57 Ventilation and A/c
- (6) **SERVICES. ELECTRICAL. MECHANICAL**
63 Electrical light and power 64 Signalling. Telecom. Radio. TV. 66 Lifts etc. 68 Special
- (7) **SPACES AND FIXTURES AND EQUIPMENT: GENERAL**
71 Entrances 72 Ordinary Rooms 73 Kitchens 74 Lavatories 75 Laundries 76 Stores
- (8) **SPACES AND FIXTURES AND EQUIPMENT: SPECIAL**
for special use, e.g. Shop fixtures. School furniture etc.
- (9) **BUILDING TYPES**
91 Engineering Wks. 92 Civic, Public, Office, 93 Transport, Industrial. 94 Health, Welfare
95 Entertainment, Recreation 96 Ecclesiastical 97 Education, Science, Art 98 Residential
- A X GENERAL. BUILDING CONSTRUCTION AND PRODUCTS**
- A 0 SOURCES OF KNOWLEDGE**
Documentation. Periodicals. Institutions. Periodicals etc.
- A 3 SOCIOLOGY**
Statistics. Property. Social Aspects. Law. Public Administration. Education. Standardization
- A 5 SCIENCE**
Physics. Acoustics. Optics. Colour. Electricity. Chemistry. Geology. Climatology
- A 6 ENGINEERING**
Public Health Eng. Struct. Eng. Sanitary Eng. Illuminating Eng. Heating, Ventilation and AC Eng. Other Special
- A 7 PLANNING, LANDSCAPE. ARCHITECTURE. DESIGN**
Regional. Town. Site. Landscape. Planting. Architecture. History. Aesthetics. Design
- B ORGANISATION**
Labour. Finance. Office Organization. Building Organization. Building Economics. Contracts
- C EARTHWORK**
Site investigation. Soils. Ground Water. Excavation
- D MATERIALS**
Testing. Inorganic. Organic. Special. Bulk materials, aggregates. Protectives etc.
- E H STRUCTURAL WORK AND PRODUCTS**
Concreting. Brickwork. Masonry. Large units erection. Structural steel and timber etc.
- I J PIPE AND WIRE WORK AND PRODUCTS**
Metal. Concrete. Clay. Plastic. Pipework etc.
- K L INSULATION AND MEMBRANES AND PRODUCTS**
Concrete. Fibre. Cork. Felt. Plastic Insulation. Foils. Felts. Membranes etc.
- M N SHEETING AND TILING AND PRODUCTS**
Metal. Stone. Wood. Glass. Ceramic. Sheetting and Tiling etc.
- P U FINISHING WORK AND PRODUCTS**
Plastering. Acoustic Treatment. Sheet covering. Tiling bolt-jointing etc. Flooring. Claddings
- V PAINTING AND PAINTS**
Wallpaper. Painting and Decorating
- X ASSEMBLING AND EQUIPMENT**

Fig. 7. BUILDING INFORMATION STANDARDS. Standards for Building Information have been agreed by the International Council of Building (CIB) and are recommended for general adoption by all producers of information. The British Standards Institution and the Royal Institute of British Architects has adopted the A4 paper

size (BS 1311) for letters, duplicated and printed papers. The essential standards: Size: A4 $11\frac{3}{4} \times 8\frac{1}{4}$ (297 mm. \times 210 mm.) Hole punching. 2 holes. $3\frac{1}{8}$ in. centres (80 mm.) Filing space. 1 in. margin no text or illustrations. Classification: To system explained in the issue.

SFB File No.

A

UDC No.

025.4

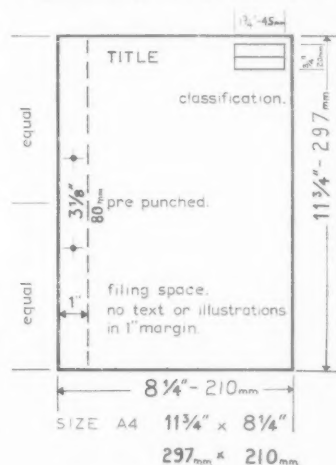
Standard Printing for Classification.



Fig. 5. Individual Subject File. All papers, data sheets, articles, digests, about the same subject should be kept in one file. To avoid loss they need to be punched $3\frac{1}{8}$ in. (80 mm.) centres and pinned into the file.



Fig. 6. Related Subjects in a Box. All individual subject files should be kept in groups either 6 in a box or 25 in a filing cabinet drawer. The boxes and drawers should have changeable labels for each group of subjects.



(3) SECONDARY ELEMENTS

69.027/.028

- (30) **IRONMONGERY: GENERAL** { 682.5/.6
683.3
(incl. draught strips)
- (30) **Window ironmongery**
(incl. catches, strips, etc.)
- (30) **Door ironmongery**
(incl. locks, latches, handles, etc.)
- (30) **Furniture ironmongery**
- (31) **WINDOWS: GENERAL** 69.028.2
- (31) **Windows: Metal: General** 69.028.1:669
- (31) **Windows: Wood: General** 69.028.1:674
- (31) **Windows: Pivoting** 69.028.11
- (31) **Windows: Sliding** 69.028.12
- (31) **Windows: Shop**
(Extend according to needs)
- (32) **DOORS, EXTERNAL AND INTERNAL** 69.028.1
(incl. hatches, gates)
- (32) **Doors, sliding and folding, internal** 69.028.12
- (32) **Doors, protecting**
(fire resisting doors, safe doors etc.)
- (32) **Doors, garage and industrial**
- (33) **FLOORGRILLES. MACHINE BASES** 69.025.37
- (33) **Deckings. Ribbed panels** 69.025.28
- (33) **Trap doors. Duct and Inspection covers** 69.027.8
- (34) **HANDRAILS. BALUSTRADES** 69.026.33
(incl. all railings in buildings)
- (36) **GLASS BLOCK LIGHTS. PAVEMENT** 69.024.98
- (37) **ROOF LIGHTS: GENERAL** 69.024.9
- (37) **Lantern lights** 62.024.92
- (37) **Dormers** 69.024.92
- (37) **Roof windows and doors** 69.024.92
- (38) **GUTTERS. DOWNPIPES. RAILS ETC.** 69.024.121
(incl. cleaning rails, roof gangways etc.)
- (38) **Water heads. Roof drains** 69.024.121
- (38) **Roof gangways. Snow rails**
- (38) **Canopies** 69.022.38

(4) FINISHES

- (41) **FINISHES, EXTERNAL: GENERAL**
- (41)P **Finishes, external: Plaster, Rendering**
- (41)S **Finishes, external: Tiles**
- (41)U **Finishes, external: Claddings**
- (42) **FINISHES, INTERNAL: GENERAL**
- (43) **FINISHES, FLOOR: GENERAL** 69.025.3
- (43)E **Finishes, floor: Concrete** 69.025.331.5
- (43)Hi **Finishes, floor: Wood strip** 69.025.351.1
- (43)S **Finishes, floor: Tiles, clay, concrete** { 69.025.333
69.025.334
- (43)Ti **Finishes, floor: Wood** 69.025.351.3
(special blocks, parquet, etc.)
- (43)Tn **Finishes, floor: Plastic, composition** 69.025.355
- Cork Lino, Rubber** 69.025.356
- (43)Tq **Finishes, floor: Jointless. Grano.** { 69.025.331
69.025.332
Terrazzo 69.026.35
- (44) **FINISHES, STAIR: GENERAL**
- (45) **FINISHES, SILLS. SKIRTINGS.**
- (46) **FINISHES, FLAT ROOF. TERRACE**
- (47) **FINISHES, ROOF: GENERAL** 69.024.15
- (47)Ln **Finishes, roof: Bituminous felt**
- (47)Md **Finishes, roof: Plain metal sheets**
- (47)Nd **Finishes roof: Corrugated metal sheets**
- (47)Ne **Finishes, roof: Stone tiles, [slates, etc.]**
- (47)Nf **Finishes, roof: Concrete tiles**
- (47)Ng **Finishes, roof: Clay tiles**
- (47)Nh **Finishes, roof: Asbestos cement tiles**
- (47)Ni **Finishes, roof: Wood shingles**
- (47)Nk **Finishes, roof: Reeds, Straw**
- (48)Md **FINISHES, ROOF: SHEET METAL FLASHINGS**

(5) SERVICES INSTALLATIONS (SANITATION, HEATING, VENTILATION)

- (50) **ACCESSORIES FOR SERVICE INSTS.** 621.6
(pipes, tubes, ducts, etc. see 1)
- (51) **INSTALLATION, REFUSE DISPOSAL** 696.139
(refuse chutes, garchey system, incinerators etc.)
- (52) **INSTALLATIONS, SANITATION:**
(soil and waste pipes etc.) 696.12
- (52) **Sanitary fittings** 696.129
(traps, sewage pumps etc.)
(basins, baths, wcs see 74)
- (53) **INSTALLATIONS, WATER:** 696.11
- (53) **Water fittings**
(cisterns, taps, valves, pumps, softeners, etc.)
- (53) **Installations, hot water** 696.4
- (53) **Hot water fittings** { 621.646
696.11
696.2
- (54) **INSTALLATIONS, GAS** 696.2
- (54) **Gas fittings** 696.2
(meters, burners, taps etc.)
- (54) **INSTALLATIONS, COMPRESSED AIR** 621.51/.54
- (54) **INSTALLATIONS, REFRIGERATION:** 621.56/.57
621.18
696.3
- (54) **INSTALLATIONS, STEAM**
- (56) **INSTALLATIONS, HEATING** 697
(for theory and computation see A 697)
- (56) **Heating equipment. Fires. Stoves, etc.** 697.2
- (56) **Central Heating: General** 697.3
- (56) **Heating equipment. Boilers. Burners, etc.** 697.32
- (56) **Heating pipes. Pumps. Heat exchangers, etc.** 697.33/.34
- (56) **Unit heaters. Radiators. Convectors,** 697.35
- (56) **Heat pumps. Solar, Electric Heating** 697.36/.71
- (56) **Chimney flues** 697.8
(incl. cleaning and maintenance)
- (57) **INSTALLATIONS, VENTILATION AND AIRCONDITIONING: GENERAL** 697.9
- (57) **Ducts. Grilles, etc.** 697.92
- (57) **INSTALLATIONS, AIRCONDITIONING** 697.93/.94
- (57) **INSTALLATIONS, MECH. VENT.** 697.95
- (57) **Ventilators, Fans, Filters, Humidifiers** 697.953
- (57) **Warm air heating and air cooling** 697.97/.98

(6) SERVICES INSTALLATIONS (ELECT. MECHANICAL)

- (60) **ACCESSORIES FOR ELECTRICAL INSTALLATIONS** { 621.3
696.6
(fuse boards, switches, plugs etc.)
- (63) **INSTALLATIONS, ELECTRICAL LIGHTING AND POWER** 621.32
- (63) **Light fittings** 621.32
- (64) **INSTALLATIONS, SIGNALLING, TELECOMMUNICATION, RADIO, TELE** 621.39
- (66) **INSTALLATIONS, LIFTS, ESCALATORS, CONVEYORS**
- (66) **OTHER MECHANICAL INST.** 69.026.6/.7
- (68) **INSTALLATIONS, SPECIAL**
(lightning conductors, fire and burglar alarms, sprinklers and other firefighting, pneumatic tubes, vacuum cleaning systems etc.)

(7) SPACES AND FIXTURES AND EQUIPMENT: GENERAL

Place here planning studies and product information for spaces and rooms common to all buildings

- | | |
|--|--------------|
| | 645.1/.5 |
| (71) ENTRANCES: GENERAL | 643.563 |
| (71) Entrance equipment | 643.562 |
| (72) ORDINARY ROOMS | 643.4/.5 |
| (72) Room fixed furniture: General | |
| (72) (incl. shelves, cupboards, blinds, curtain tracks shutters, etc.) | |
| (72) Loose furniture | 643.4 |
| (72) (incl. tables chairs etc.) | |
| (73) KITCHENS: GENERAL | 643.3 |
| (73) Kitchen equipment. Cookers. Ovens. | |
| (73) Kitchen equipment. Sinks. Washing up machines | |
| (73) Kitchen equipment. Refrigerators. Deep freezers | |
| (73) Kitchen equipment. Cupboards | |
| (73) Kitchen equipment. Ventilators. Fans. Hoods | |
| (74) LAVATORIES, BATHROOMS | { 645.68 |
| (74) CHANGING ROOMS. DRESSING ROOMS, CLOAKROOMS | { 696.14 |
| (74) Cloakroom fittings | |
| (74) W.Cs. Urinals. W.C. suites | |
| (74) WASHING ROOM Basins | |
| (74) BATHROOM. Baths. Showers | |
| (74) Miscellaneous. Paper holders. Dryers etc. | |
| (75) LAUNDRIES AND DRYING ROOMS: GENERAL | 648 |
| (75) Laundry equipment. Wash tubs | |
| (75) Laundry equipment. Wash boilers and machines | |
| (75) Laundry equipment. Tumbler dryers | |
| (75) Laundry equipment. Ironers. Ironing machines | |
| (75) Miscellaneous | |
| (76) CLEANING CLOSETS, STORES FIXTURES | 648.5 |
| (77) BOILER ROOMS, GARAGES FIXTURES | |
| (78) Exterior and garden fixtures | |
| (78) (incl. fixed seats, sandpits, screens etc.) | |
| (8) SPACES AND FIXTURES AND EQUIPMENT (SPECIAL) | 721.05 |
| <i>Place here planning studies of special spaces in buildings and product information for the special function of the building</i> | |
| (8) Shop fixtures and equipment | 721.05:658.8 |
| (8) Theatre fixtures and equipment | 721.05:792 |
| <i>(extend according to needs. See (9) for building types)</i> | |

(9) BUILDING TYPES**(91) ENGINEERING CONSTRUCTION WORKS: GENERAL**

- | | |
|--|------------|
| | 62 |
| Power stations | 621.311 |
| Tunnels | 624.19 |
| Bridges: General | 624.2 |
| Large span roofs. Transport structures | 624.9 |
| (incl. hoists, silos, towers, pylons) | |
| RAILWAY ENGINEERING | 625.1 |
| Special types of railways. Undergrounds. | |
| Tramways | 625.3/.6 |
| HIGHWAY ENGINEERING. ROAD CONSTRUCTION | 625.7 |
| Motorways | 625.711.3 |
| Other means of land transport. Ropeways and Cableways | 625.9 |
| HYDRAULIC CONSTRUCTION WORKS. GENERAL | 626 |
| Canals | 626.1 |
| Locks | 626.4 |
| Irrigation | 626.81/.85 |
| Drainage. Reclamation of marshes | 626.86/.87 |
| Harbour works | 627.2 |
| River improvements for navigation | 627.41 |
| Dikes. Polders. Land reclamation | 627.5 |
| Dams. Reservoirs. Water engineering works | 627.8 |
| Structures for hydraulic power installations | 627.84/.88 |
| Waterworks | 628.1 |
| Sewage works | 628.3 |
| Refuse disposal stations | 628.4 |
| Docks | 629.128 |
| Airports | 629.139 |
| FARM BUILDINGS: GENERAL | 631.2 |
| Farms | 631.2 |
| Animal houses and stores | 631.2 |
| Agricultural storage buildings | 631.2 |
| Dairies. Slaughterhouses, etc. | 637 |

(92) CIVIC, ADMINISTRATIVE AND PUBLIC BUILDINGS

- | | |
|--|---------|
| | 725.1 |
| Houses of Parliament. Capitols, etc. | 725.11 |
| Ministries. Government offices | 725.12 |
| Embassies | 725.125 |
| Town Halls. Municipal buildings. General buildings for public services. | |
| Civic centres | 725.13 |
| Revenue buildings. Customs houses, etc. | 725.14 |
| Law courts. Courts of Justice. Tribunals | 725.15 |
| Record offices. Archives | 725.155 |
| Post, telegraph and telephone buildings | 725.16 |
| Post offices | 725.161 |
| Royal, presidential, official residences | 725.17 |
| Military and police buildings | 725.18 |
| Police stations | 725.188 |
| Barracks | 725.181 |
| Public service buildings | 725.19 |
| Fire stations | 725.191 |

(92) COMMERCIAL AND OFFICE BUILDINGS

Shops: General. Shop buildings	725.21
Self-service shops	725.21
Department stores	725.21
Mixed buildings shops, and flats	725.22
Mixed buildings of shops and offices	725.22
Offices buildings in general	725.23
Banks. Savings banks	725.24
Exchange buildings	725.25
Market halls	725.26
Livestock cattle markets. Market Crosses	725.27
Slaughterhouses	725.28
Other commercial buildings	725.29

(93) TRANSPORT, AND STORAGE BUILDINGS

Station buildings	725.31
Goods stations	725.32
Various railway buildings, repair shops and sheds	725.33
Port and harbour buildings	725.34
Wharves	725.34.2
Warehouses	725.35
Cold storage buildings	725.35.5
Silos and grain elevators	725.36
Garages. Filling and service stations.	
Bus termini	725.38
Airport buildings. Hangars	725.39

(93) INDUSTRIAL BUILDINGS, MILLS, WORKS, FACTORIES ETC.*(extend according to needs)***(94) HEALTH AND WELFARE BUILDINGS**

General Hospitals for sick and wounded	725.51
Special Hospitals. Maternity homes. Antenatal clinics	725.51
Health Centres. Group practice centres	725.51
Convalescent homes	725.51.4
Sanatoria	725.51.5
Mental hospitals	725.52
Institutions for the blind and the deaf and dumb	725.54
Homes for the aged	725.56
Child welfare buildings. Infant and child homes	725.57
Day nurseries	725.57.3
Animal—and other homes and institutions	725.59

(94) PRISONS, REFORMATORIES ETC.

725.6

(95) PUBLIC REFRESHMENT BUILDINGS, RESTAURANTS, BATHS AND PARKS

Restaurants. Cafes. Milk bars. Snack bars, etc.	725.71
Public houses. Bars	725.72
Baths. Thermal and medicinal baths	725.73
Swimming baths, covered and open air	725.74
Holiday and garden buildings.	
Casinos. Kursaals. Bandstands	725.75/76

(95) PUBLIC ENTERTAINMENT AND RECREATION BUILDINGS

Concert buildings	725.81
Theatres, dance halls, etc.	725.82
Opera houses	725.82.1
Cinemas	725.82.3.4
Amphitheatres for various amusements. Stadia	725.82.6
Assembly buildings. Congress halls.	725.84
Community centres	725.83
Village halls	725.83.5
Buildings for indoor games	725.84
Gymnasias	725.85
Rinks and Racing tracks	725.86
Buildings for yachting and boating	725.87
Riding Schools	725.88
Other recreation buildings. Playing fields.	
Tennis courts. Sports pavilions.	725.89

(95) VARIOUS CIVIL BUILDINGS

Exhibition buildings. Fairs	725.91
Monuments	725.94
(Town) Gates and Walls	725.96

(96) ECCLESIASTICAL BUILDINGS

Temples. Mosques. Synagogues	726.1/.3
Chapels. Churches. Church halls	726.4/.5
Cathedrals. Monasteries. Convents.	726.6/.7
Funerary architecture. Tombs, crypts, memorials etc.	726.8
Crematoria	726.8.3
Other religious buildings. Parsonages.	
Episcopal palaces	726.9

(97) BUILDINGS FOR EDUCATION, SCIENCE, ART

Primary schools, infant, junior	727.1
Secondary schools. Boarding schools.	
High schools. Comprehensive schools.	727.2
Universities. Colleges	727.3
Vocational schools. Technical colleges.	727.4
School and University laboratories	727.5
Industrial laboratories. Research Inst.	727.5
Museums. Botanical and zoological	727.6/.7
Libraries	727.8
Observatories. Planetaria	727.91/.93
Broadcasting stations. Studios	727.94
Buildings for scientific associations	727.95

(98) RESIDENTIAL BUILDING, HOUSES AND HOUSING SCHEMES

Housing: General	728.1
Tenement houses. Blocks of flats	728.2
(Blocks of flats with communal facilities)	728.2.2.6
Houses: General	728.3
Terraced houses	728.3.1
Semi-detached houses	728.3.4
Detached houses	728.3.7
Club buildings	728.4
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	Vermiculite. Pumice. Shale	
Dp2	Crushed brick. Concrete	
Dp3	Slag. Clinker	
Dp4	Ash	
Dp5	Shavings. Sawdust. Woodwool. Paperwool	
Dp6	Powders	
Dp7	Wool, mineral, glass	
Dq	LIMES, CEMENTS, MORTARS	
Dq1	Limes, hydrated, quick	
Dq2	Cements	
Dq4	Mortars, including coarse stuff for rendering, granolithic. Screed, etc.	
Dq5	Terrazzo in general (see Tq 5 flooring, St 3 tiles, Uf 3 cladding)	
Dq6	Lightweight concrete	
Dr	GYPSUM. PLASTERS. MAGNESITE	
Dr1	Fire-resistant mortar. Chemical resistant mortar	
Dr2	Gypsum plasters	
Dr3	Magnesian quick lime	
Ds	BITUMINOUS MATERIALS. TAR. ASPHALT	
Ds1	Bitumen. Tar. Pitch. Tar oil	
Ds2	Bitumen solutions. Emulsions	
Ds4	Mastic asphalt	
Ds5	Asphalt. Bitumen macadam and tarmacadam	
Dt	ADHESIVES AND JOINTING MATERIALS	
Dt1	Welding materials	
Dt2	Soldering and Brazing materials	
Dt3	Glue. Paste. Adhesives	
Dt4	Putty. Mastics. Other jointing materials	
Du	PROTECTIVE MEANS AND MATERIALS	
Du1	Corrosion protectives	
Du2	Admixtures for concrete, mortar (incl. colours)	
Du3	Rot and insect attack protectives	
Du4	Fireproofing and retarding protectives	
Du5	Polishes. Seals. Floor treatment materials	
Du6	Water repellent treatment materials	
Dw	CHEMICALS	

E CONCRETE AND CONCRETING

Eb2	FORMWORK (see also Bb for forms)
Ed2	Reinforcing work and steel reinforcement
Eq4	Concrete, in-situ
E	Prestressed concrete work

F BRICKS: BLOCKS AND BRICKWORK, BLOCKWORK AND MASONRY

- Fd2 Special steel reinforcement for brickwork
 Fe STONE BLOCKS
 Ff CONCRETE, LIGHTWEIGHT CONCRETE AND SAND-LIME BLOCKS
 Ff1 Sand-lime bricks
 Ff2 Concrete bricks and blocks
 Ff4 Lightweight concrete blocks
 Fg CLAY BRICKS AND BLOCKS
 Fg2 Clay bricks and blocks
 Fg3 Terracotta. Faience. Earthenware blocks
 Fg6 Fire clay bricks and blocks
 Fg7 Chemically resistant clay bricks and blocks
 Fo GLASS BLOCKS

G STRUCTURAL UNITS AND ERECTION

- Gd METAL STRUCTURAL UNITS
 Gd2 Steel structural units
 Gf CONCRETE STRUCTURAL UNITS: CONCRETE
 Gf2 Concrete structural units
 (for floors, roofs, walls, partitions, staircases, etc. (incl. prestressed))
 Gf4 Lightweight concrete structural units
 Gg CLAY STRUCTURAL UNITS
 Gg2 Components made of burnt clay
 Gi WOODEN STRUCTURAL UNITS
 (built-up beams, rooftrusses, wallpanels etc.)
 Gk3 Precast wood wool units
 Gx Structural units of mixed materials

H BARS, SECTIONS AND STRUCTURAL ASSEMBLY

- Hd METAL BARS AND SECTIONS
 Hd2 Steel sections and structural steelwork
 Hd3 Stainless steel sections
 Hd4 Aluminium sections and structural aluminium work
 Hd6 Bronze and brass sections
 Hi TIMBER SECTIONS AND STRUCTURAL WOODWORK
 Hi2 Softwood sections
 Hi3 Hardwood sections
 Hn6 Plastic sections

I TUBES, PIPES AND PIPEWORK

- Id METAL TUBES AND PIPES
 Id1 Cast iron tubes and pipes
 Id2 Steel and wrought iron tubes and pipes
 Id3 Stainless steel tubes and pipes
 Id4 Aluminium tubes and pipes
 Id5 Copper tubes and pipes
 Id6 Bronze and brass tubes and pipes
 Id8 Lead tubes and pipes
 If CONCRETE TUBES AND PIPES
 If2 Precast concrete pipes
 Ig CLAYWARE AND CERAMIC TUBES AND PIPES
 Ig2 Clayware pipes. Agricultural pipes
 Ig4 Salt-glazed ware pipes
 Ig7 Chemically resistant ware pipes
 Ih ASBESTOS CEMENT AND GYPSUM TUBES AND PIPES
 h1 Asbestos cement pipes
 Ih2 Gypsum plaster pipes
 In PLASTIC AND COMPOSITION TUBES AND PIPES
 In2 Pitch-fibre pipes
 In5 Rubber tubes, pipes and hoses
 In6 Plastic tubes, pipes and hoses

J WIRES, MESH, SUNDRY SECTIONS AND WORK

- Jd SUNDRY METAL SECTIONS.
 Jd2 Steel wires, cables, chains, ribbons, wire mesh.
 Jd3 Stainless steel wires and wire mesh
 Jd4 Aluminium wires, etc.
 Jd5 Copper wires, etc.
 Jd6 Bronze and brass wires, etc.
 Jd7 Zinc wires, etc.

- Jj3 Jute webs, scrim, ropes
 Jm1 Mineral wool ropes, glass fibre webs
 Jn6 Plastic, ropes, ribbons etc.

K INSULATIONS PRODUCTS AND WORK

- Kd4 Aluminium foils (for thermal insulation)
 Kh1 Insulating asbestos sheets
 Kf INSULATING CONCRETE SLABS
 Kf4 Insulating lightweight concrete slabs
 Kj FIBRE INSULATION PRODUCTS
 Kj1 Fibre insulating boards
 Kj4 Corrugated paper boards
 Kk CORK, REED, STRAW INSULATION
 Kk1 Cork board
 Kk3 Wood wool slabs
 Kk4 Straw boards
 Kk5 Peat boards
 Km INSULATION QUILTS
 Km1 Mineral, glass wool, quilts, bats
 Km2 Organic quilts, bats ("Cabots")
 Km3 Wadding quilts, bats
 Kn PLASTIC AND COMPOSITION INSULATION
 Kn6 Foam plastic insulating boards
 Kp AGGREGATES AND FILLS FOR INSULATION
 Kp1 Vermiculite
 Kp2 Granulated clay or lightweight aggregates
 Kp3 Granulated blast-furnace slag, expanded clinker
 Kp5 Granulated cork, sawdust, wood wool, paper wool
 Kp7 Mineral and glass wools
 Kq MORTAR LIME CEMENT INSULATION
 Kq4 Insulating mortar
 Kq6 Lightweight concrete (in-situ)
 Kr2 Insulating plaster
 Kx PRODUCTS FOR ANTI-VIBRATION
 Ky PRODUCTS FOR INSULATION AGAINST DISCHARGE, X-RAYS, ETC.

L FOILS, PAPERS, FELTS

(only very thin sheets)

- Ld METAL
 Ld4 Aluminium foils, generally (see K insulation foils)
 Ld5 Copper foils
 Lj PAPERS
 Lj2 Not impregnated building paper
 Ln PLASTIC AND COMPOSITION
 Ln2 Bituminous felts, and papers
 Ln3 Bitumen coated fabric
 Ln6 Plastic foils
 Ls BITUMINOUS MEMBRANES WORK
 (see Ds for bituminous materials)

M PLAIN METAL SHEETS AND SHEET METAL WORK AND SIMILAR NON-RIGID SHEETS

- Md2 Steel sheets
 Md3 Stainless steel sheets
 Md4 Aluminium sheets
 Md5 Copper sheets
 Md6 Bronze and brass sheets
 Md7 Zinc sheets
 Md8 Lead sheets

N TILES, SHEETS (overlapping) AND TILING AND SHEETING

- Nd** CORRUGATED METAL SHEETS
Nd2 Corrugated steel sheets
(incl. bituminous surfaced)
Nd4 Corrugated aluminium sheets
Nd5 Corrugated copper sheets
Ne STONE TILES
Ne5 Slates
Nf2 Cement concrete roofing tiles
Ng2 Clay tiles
Nh1 Corrugated asbestos cement sheets. Shingles of asbestos cement
Ni WOOD SHINGLES
Nn6 Glassfibre-reinforced polyester sheets
No GLASS TILES

P PLASTER, LATHS AND PLASTERWORK

- Pd2** Steel lath
Pg2 Clay laths
Pi2 Softwood lath
Pq4 Plasters, lime and cement
Pr2 Gypsum plasters

Q SOUND ABSORPTION PRODUCTS AND ACOUSTIC TREATMENT WORK

- Qd** METAL TILES OR SHEETS (ACOUSTIC)
Qh ASBESTOS CEMENT AND GYPSUM TILES AND SHEETS (ACOUSTIC)
Qh1 Asbestos cement tiles and sheets
Qh2 Gypsum plaster tiles and sheets
Qi WOOD TILES, SHEETS, PANELS (ACOUSTIC)
Qj1 Fibre board tiles and perforated fibre boards
Qk3 Wood wool tiles. Sheets Slabs
Qm1 Mineral wool finished panels
Qn6 Plastic surfaced panels
Qq ACOUSTIC PLASTERS (WITH LIME OR CEMENT)
Qr ACOUSTIC PLASTERS (GYPSUM)
Qx OTHER TYPES OF ACOUSTIC UNITS

R SHEETS AND SHEETING WORK

- Rh** ASBESTOS AND GYPSUM SHEETS (FLAT)
Rh1 Asbestos cement sheets
Rh2 Gypsum plasterboard and slabs
Ri WOOD BOARDS AND SHEETS
Ri4 Plywood. Laminboard. Blockboard
Rj CELLULOSE FIBRE BOARDS
Rj1 Fibre building boards. Hardboard. Medium hardboard
Rj1 Chipboards
Rj2 Pulp boards
Ro SHEET GLASS, PLATEGLASS, WIRED GLASS, ETC., AND GLAZING

S TILES (butt) jointing AND TILEWORK

- Sd** METAL TILES
Sd1 Cast iron floor plates
Sd2 Steel floor plates
Se NATURAL STONE TILES AND SLABS
Se5 Slate tiles and slabs
Sf CONCRETE TILES
Sf2 Precast concrete tiles
Sf3 Terrazzo tiles
Sg CERAMIC TILES AND MOSAICS
Sg2 Burnt clay paving tiles. Quarry tiles
Sg3 Glazed earthenware wall tiles. Faience
Sg4 Semi-vitreous tiles
Sg5 Vitreous tiles. Mosaics
Sg7 Chemically resistant tiles
Sn COMPOSITION TILES
Sn1 Mastic asphalt tiles
So GLASS TILES AND MOSAICS
So Glass mosaic tiles

T FLOOR PRODUCTS AND FLOORING

- Td2** Floor plates. Chequer plates
Ti WOOD FLOOR PRODUCTS
Ti Wood blocks, parquet
Tj CELLULOSE FLOOR PRODUCTS
Tj1 Wood fibre flooring tiles, hardboard
Tj3 Wool carpets, etc.
Tk CORK, ETC., FLOOR PRODUCTS
Tk1 Cork tiles
Tn PLASTIC AND COMPOSITION FLOOR PRODUCTS
Tn1 Thermoplastic tiles
Tn4 Linoleum
Tn5 Rubber sheet and tiles
Tn6 Plastic sheet and tiles
Tq5 Terrazzo (in-situ)
Tr3 Magnesite (jointless)
Tr4 Plastics (jointless)
Ts BITUMINOUS FLOOR PRODUCTS
Ts2 Bituminous emulsion (jointless)
Ts4 Mastic asphalt (jointless)

U CLADDINGS AND FACINGS AND WORK

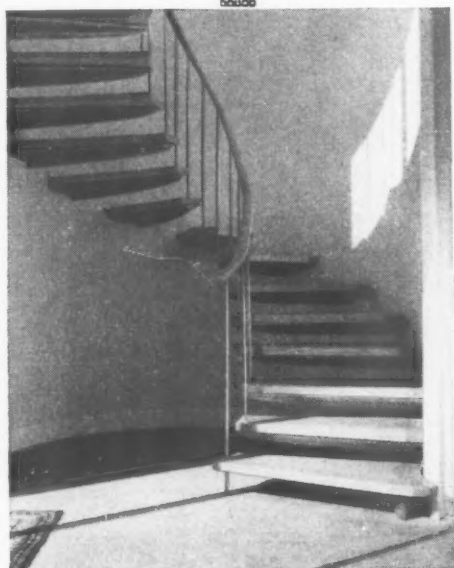
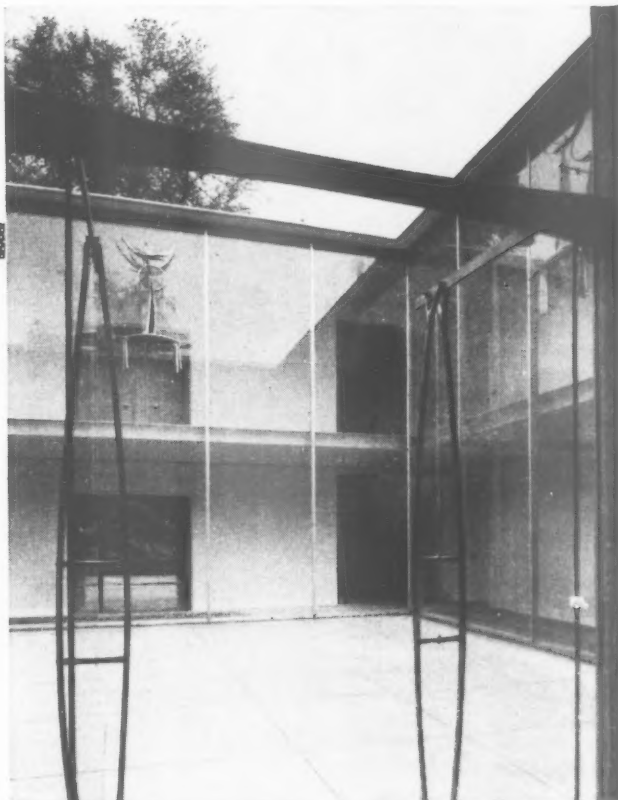
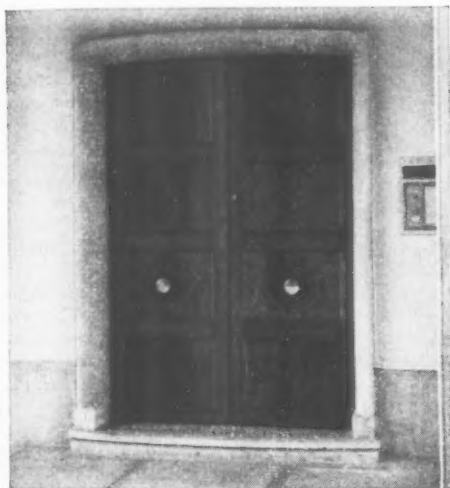
- Ud** METAL CLADDINGS
Ud2 Enamelled steel plates and panels
Ud3 Stainless steel plates and panels
Ud4 Aluminium plates and panels
Ud5 Copper plates and panels
Uf CONCRETE
Uf2 Precast concrete cladding slabs
Uf3 Terrazzo facade slabs
Ug CERAMIC FACINGS
Uh ASBESTOS CEMENT SHEET CLADDINGS
Ui WOOD CLADDINGS
Ui2 Softwood cladding, cedar, etc.
Ui3 Hardwood cladding
Ui4 Plywood and composite panels
Uj CELLULOSE PULP FACINGS
Uj1 Lacquered hardboard, perforated hardboard
Uj3 Fabric for decorative covering
Uk CORK SHEETS FOR WALL COVERING
Un PLASTIC AND COMPOSITION
Un6 Plastic sheets and tiles. PVC-coated fabric
Uo GLASS CLADDING

V PAINTS AND PAINTING WORK

- Vj** Wall paper
Vq Lime washes and cement paints
Vr Emulsion paints
Vv Oil paints and hard gloss paints
Vx Other decorating products

PRINCIPAL'S LODGE

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MANUFACTURERS OF PLYWOOD, ARMOURPLY, PANELS AND COMPOSITE PARTITIONING

A. G. Powell, Senior Research Officer, London Region, MOHLG, gave a paper on "The Recent Development of Greater London" at the British Association. His principal conclusions were that planning based on the 1939 Barlow report and the 1944 Abercrombie Greater London Plan were out of date: that the expanding London conurbation was the product of geographical and economic forces too powerful for man to reverse; and that an embryonic conurbation 100 miles across exists and must inevitably consolidate still further. Mr. Powell's views are personal, and would not necessarily be endorsed by the Ministry.

LONDON CONURBATION 100 MILES WIDE

Planning Officer's Prediction to British Association

Mr. Powell, after summarizing the views of the Barlow Commission on the advantages and disadvantages of the London conurbation, and recalling the objectives of the 1944 Abercrombie Greater London Plan, examined post-war changes in the functions of London. New ones had evolved which the Commission could, at best have only seen dimly such as the employment of 25,000 at London airport, and the re-orientation of the national economy based on the imperative need to export at competitive prices (tonnage using the Port of London was 20 per cent greater in 1958 than in 1938). Because the need to export was "the focal point of national economic policy to which all other considerations take second place" the extent to which restrictions on industrial growth could be rigidly enforced in London or elsewhere had been limited.

Office building

There was also increased employment in the metropolis, attributed by Mr. Powell to the increased number of office workers required by the Welfare State and by commerce. Mr. Powell admitted that much of the office employment in central London could operate successfully elsewhere in the region, though "how much, in the absence of collected data, it is impossible to say," but he described the approval of 46 million sq. ft. of offices since 1948 as "the long overdue modernization of the heart of Britain."

Recalling Barlow's emphasis on the need to control new factory building and prevent the drift of new industry to London, Mr. Powell said that the extension and modernization of existing factories, rather than new industry, was the main problem, much of it arising from service industries essential to the increase of living standards in the region. Additional employment in the London conurbation arising from schemes requiring a Board of Trade Certificate accounted for less than 20 per cent of the total annual increase in the London labour force. Industrial controls were already as tight as public opinion was prepared to accept, and the high costs made it quite impossible to purchase vacant premises except as part of imminent redevelopment schemes. His conclusion was that "the further expansion of industrial and allied employment in and around London is

inevitable. The continued economic expansion of South-East England as a whole is a basic economic fact which must underlie all realistic planning for the future." Mr. Powell then examined the London Region. Every district in the main built-up area of London with the exception of the periphery had a smaller population in 1958 than in 1951: the overall decrease in population was 245,000. But there had been a great wave of continuous population increase surrounding the London conurbation. A belt of increase containing 660,000, or 18 per cent more people than in 1951, completely encircled London.

"The contemporary London Region" could therefore be defined as a rough circular area with a radius of 40-50 miles from central London and a 1958 population of almost exactly 12 million—"an organic whole which is still growing." Total increase in the population between 1951 and 1958 was 400,000, accounted for almost entirely by redistribution of the 1952 population, net migration into the region being only 45,000 or 11 per cent. of the total change. Immigration into the smaller Abercrombie region was 441,000 between 1932 and 1938.

Housing land used up

The movement of 125,000 people privately into the residential areas in towns and villages in and beyond the Green Belt had filled them so that very little of the residential land originally earmarked to last until 1971 still remained underdeveloped, and the outward tide showed no sign of halting. The social forces producing this voluntary overspill were much the same as in the past—electrification and diesel development on the railways, and the use of the private car.

Had these population movements been accompanied by a comparable redistribution of employment, then the pressure on the conurbation would have been reduced as Barlow and the Development Plans proposed. But in the London Region, as defined by Powell, the increase in the working population between 1952 and 1958 was 400,000 compared to 978,000 for England and Wales. The Region, with 27 per cent. of the population received over 40 per cent. of the additional employment. The built-up area of London received 25 per cent. of the increase—and no less than 12 per cent. were concentrated at the centre.

Mr. Powell drew attention to the maldistribution of population and employment within the region, and particularly to the increase in central area employment (which he estimated at about 25,000 a year) and the growth of new industrial centres on the periphery—a "pread of small-scale industrialization welding together the larger, independent urban blocks into the solid conglomerate of the conurbation."

The overall picture of the London Region was therefore one of a compact urban core in the existing conurbation surrounded by the skeleton of a vast concentric extension of it which is 80 to 100 miles across. How was this skeleton likely to fill out in the flesh?

New demands on land

Three factors were likely to make substantial new demands on land: 1. Redevelopment and development at standards appropriate to modern conditions; 2. The post-war "bulge," already experienced in the schools, will add between 7 and 10 per cent. to the labour force each year from 1963 onwards; 3. The ageing population; the 1956 population in the conurbation is likely to generate in 10 years an additional 250,000 households requiring separate dwellings, 235,000 of them "old" households, in addition to the estimated deficiency of a further quarter of a million dwellings existing in 1956. "It seems clear that, unless an entirely new approach is made to the renewal of existing urban areas, very substantial quantities of new land will be required to meet it. Renewal of old areas and development of new ones will both take place in fact, but again the net effect must be a further consolidation of the greater conurbation round London."

In conclusion, Mr. Powell said that the economic background of the Barlow report was a thing of the past, and the planning based on it equally out-dated. "The expanding conurbation is the product of geographical and economic forces too powerful for man to reverse. He can only, within limits, direct them into convenient channels."

"The hard core of the original conurbation has been contained with substantial success within its green belt while land remained available for development within it and planned reception areas provided safety valves beyond it. In and beyond the green belt movements of population and industrial expansion have, with the aid of the motor car, created an embryonic conurbation 100 miles wide. This must inevitably consolidate still further."

"The Abercrombie Plan and the Development Plans have their social and economic roots in the Barlow Report and a Revised Regional Plan is urgently required to bring them into line with current realities. Such a revision must provide positive outlets and cannot be wholly restrictive. Unless a positive regional framework is provided, the strength of the geographic and economic forces involved threatens to break through the green belt and weld great new rings of urban development on to the core of the London conurbation as we know it today."

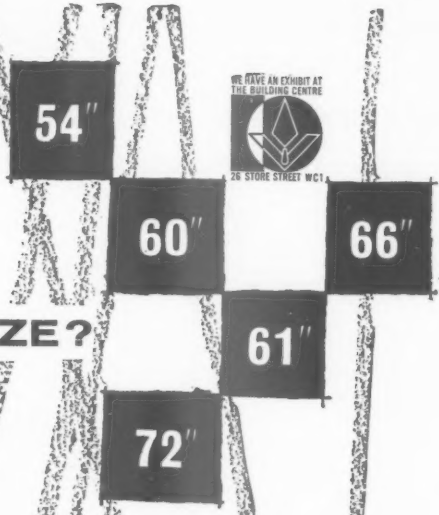
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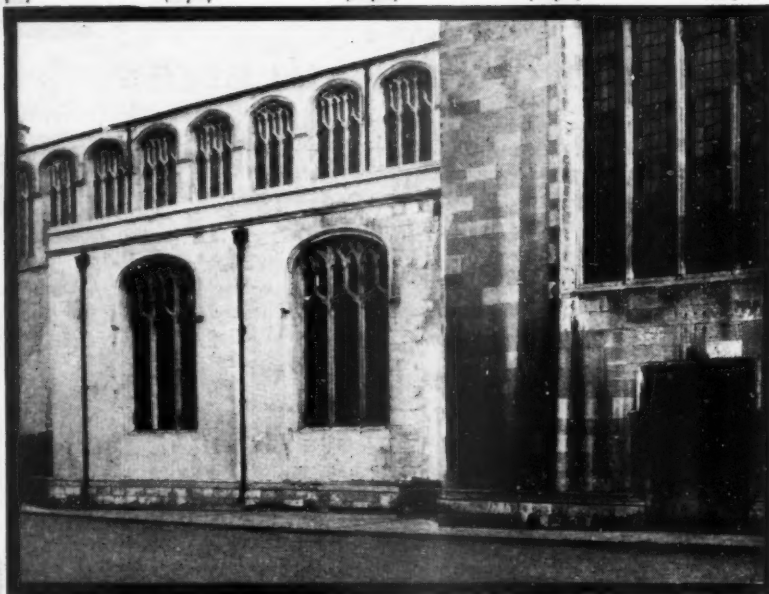
RESTORATION OF HISTORIC BUILDINGS

Founded soon after the Norman conquest, this fine old monument of King's Lynn — St. Margaret's Church — is a supreme example of early English and fifteenth century architecture.

Deterioration set in over the years, so a restoration fund was set up to endeavour to raise the necessary money.

It was cleaned down in September 1957 as far as possible on the limited funds available.

After several months, surface growths of unsightly green patches occurred caused by biological deposits. In damp conditions these algal cells proliferate resulting in green patches of fungi, lichens and moss, which are only temporarily removed by mechanical cleaning, and will recur again and again.



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Published by the kind permission of the Architect: Ellis Middleton Esq., A.M.I.C.E., F.R.I.C.S., L.R.I.B.A., Central Chambers, 1 Norfolk Street, King's Lynn.

Contractors: R. W. Dye & Sons, King's Lynn.

This problem was brought before our Laboratory and a scheme was proposed. The areas were cleaned down with 'PUDLO' Fungicide solution, destroying all biological contamination. The surface was allowed to dry and a brush coat of 'PUDLO' External Water Repellent applied to prevent any further penetration of water.

The section illustrated above — completed in September/October 1958 has withstood over six months of appallingly damp and severe Winter conditions with highly satisfactory results to all concerned.

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technical section

THE INDUSTRY

From the industry this week Brian Grant describes an oil-fired boiler, sliding door tracks, a new gutter, a fungicide and a cement paint, and factory ventilators.

Oil-fired boilers

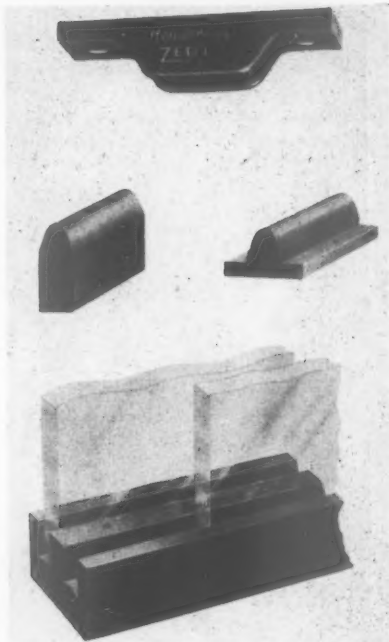
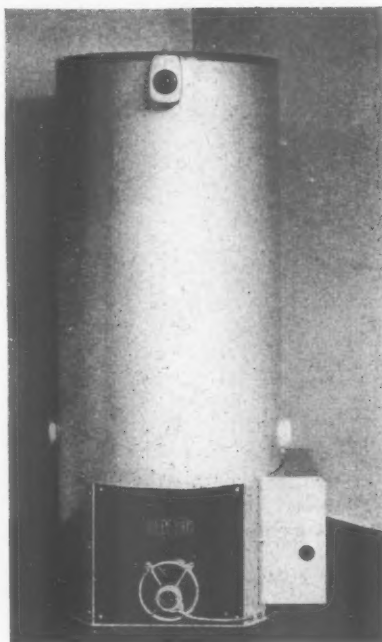
Newton Chambers have just introduced a new automatic oil-fired boiler with an output of 80,000 B.Th.U. per hour. It is known as the Centramatic 80 and the burner is a pressurized unit with a silent co-axial fan and electric ignition, the whole unit having a two year guarantee. Control is by thermostat and the burner is either full on or off so that relatively inefficient burning at reduced outputs is avoided. Height is 54 in. and diameter 22½ in. and the boiler will provide 350 sq. ft. of radiating surface and domestic hot water for a large house. Maximum fuel consumption is 5 pints per hour and the price is £149. This model is to be followed by another one later this year, having an output of 50,000 B.Th.U. (Newton Chambers & Co. Ltd., Thornclyffe, Sheffield.)

Tracks for sliding doors

A new range of Zed tracks, sliders and channels for light sliding doors has just been produced by Hendersons. All fittings are made of high density vulcanized fibre, which is claimed to be smoother and longer lasting than any other combination. The tracks vary from 8d. to 1s. 7d. a foot, and the sliders are 6d. to 9d. Channels cost from 3s. single to 7s. 6d. triple. Fixing is quite easy, the surface mounting tracks being holed at 6-in. centres for panel pins. (P. C. Henderson Ltd., Harold Hill, Romford, Essex.)

Bituminous roofings

Ruberoid have recently evolved a built up roofing known as Rubervent, which has been designed to prevent the build up of water vapour pressure from moisture in the substructure. Built up roofings may also suffer from hair cracks produced by movement in the substructure due to temperature differences or drying out. It is therefore desirable for weatherproofing layers to be isolated from the structure, and this has been achieved by coating the underside of the first underlayer with coarse mineral granules which support it uniformly and allow water vapour to disperse over the entire roof area and out at eaves and verges. Blistering of the roof through trapped moisture is therefore prevented. Venting of the spaces to the exterior is arranged through special details which need no work by other trades or detailing by the architect, except for drip battens at the eaves. The



Left, Newton Chambers' Redfyre Centramatic 80 oil-fired boiler. Right, the new Zed sliding door components.

roof is fixed by spots of bitumen incorporated in the underlayer, and all layers are bonded together at the same time so that there is no dirt or moisture trapped between them. Only glass fibre based bituminous materials are used, which cannot absorb atmospheric moisture, and Rubervent is suitable for all substructures to which bitumen will bond and which are strong enough not to delaminate. It is particularly suitable for use over insulating concrete screeds which may contain considerable quantities of moisture. Two and three layer specifications are available for pitched, flat or curved roofs, and the fixing is carried out by the makers contract division. (The Ruberoid Co. Ltd., Commonwealth House, New Oxford Street, London, W.C.1.)

Improvements in gutters

The Royston gutter is a new development by Finlock, and consists of the usual Finlock rear gutter adapted to take an artificial stone fascia to architect's designs. The fascia can be in colour if required, though artificial Portland continues to be the most popular. The fascias are produced in standard 2 ft. lengths, which can be laid with an almost invisible joint to produce a clean line at eaves level. All fascias are grooved to provide adhesion for the aluminium-bitumen gutter lining, which is fixed by the manufacturers. (Finlock Gutters Ltd., Frant Road, Tunbridge Wells, Kent.)

Two new Pudlo products

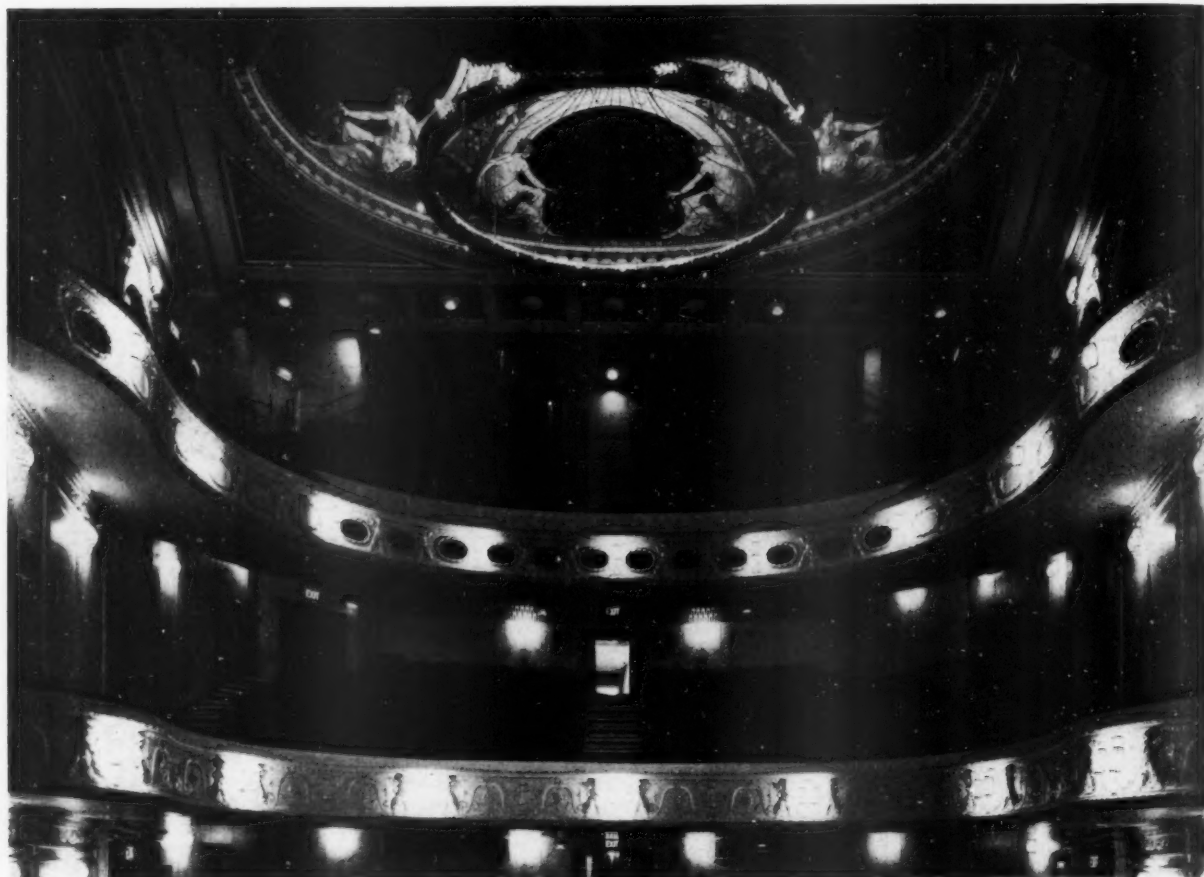
A new liquid fungicide by Pudlo has been specially compounded to destroy lichens, moss and various fungi which discolour structural materials. It can be applied by

spray or brush to stone, brickwork, asbestos cement, lightweight plasters and fibre-board, which are particularly susceptible to mould growth when subject to continual damp. The other new product is a waterproof cement paint, which is supplied in powder form and is very easy to mix. A range of 14 colours is available, and 56 lb. of powder will make 6 gallons of paint, enough to cover an average area of 100 square yards. Application is easy, and the paint has greater obliterating power than earlier types. (Kerner-Greenwood & Co. Ltd., King's Lynn.)

Factory ventilator

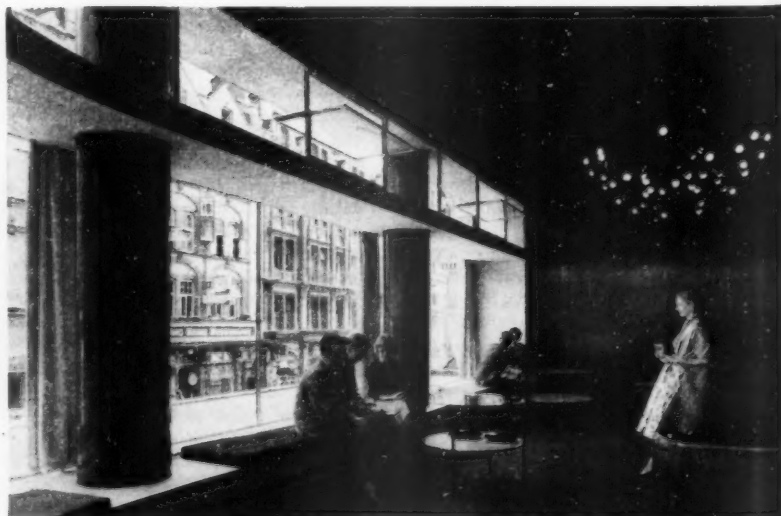
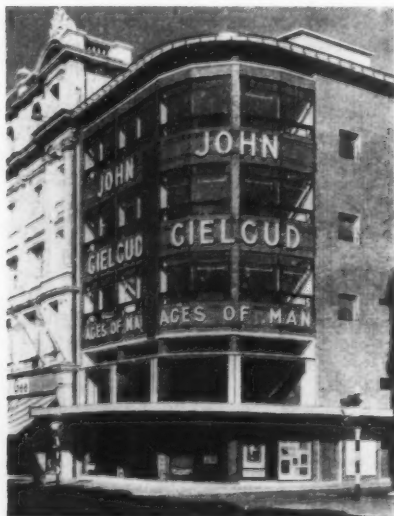
Power operated shutters and cowl ventilators are now being made by Templewood Hawksley, who are members of the Hawker-Siddeley group. The cowl extractors are designed for mounting on roof slopes, or, in a slightly modified form, continuously at ridges. They are made in three different sizes with outlet areas of 4½, 6½ and 14 sq. ft. and have remote controlled dampers which can be operated hydraulically, by hand, or by electric motor. Purpose made units are available to suit flat roofs, and they can also be made to suit any purlin spacing. The ventilating shutters are made in lengths up to 90 ft. and in widths up to 10 ft. and the shutter vanes are made of troughed aluminium sheeting. They are electrically operated by a 1 h.p. motor and can be opened and stopped at any angle up to 65 deg. with the roof plane. The shutters have a 6-in. side lap when closed and there is a continuous back rainwater gutter with a down gutter every 7 ft. 6 in. (Templewood Hawksley Ltd., Coleridge Chambers, 177 Corporation Street, Birmingham 4.)

THE RESTORED QUEENS THEATRE, SHAFTESBURY AVENUE



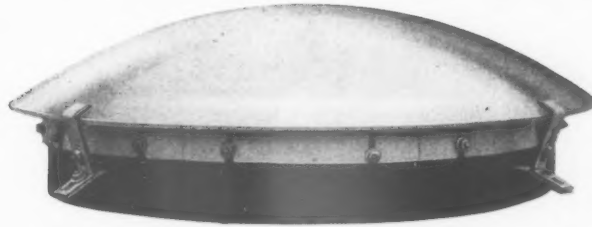
The new Queens Theatre in Shaftesbury Avenue (designed by Bryan Westwood) has recently opened again, having been restored after being bombed during the war. The main part of the auditorium was only slightly damaged and the rebuilding required was mainly of the entrance foyer, the stalls' bars and the facade of the building. The auditorium has, however, been completely redecorated, plaster casts of the surviving reliefs being made in order to replace missing parts. The ceiling has received special attention and a new chandelier

designed to give it more light. Besides the redecoration the seating has been renewed. The main innovation is the foyer and stalls' bar: the circle bar (below) overlooks Shaftesbury Avenue, giving an unusually exciting view for people having a drink in the intervals. From the outside the building looks its best at dusk: this is not a criticism—on the contrary the brilliantly lit windows and foyer give the right feeling of invitation and expectancy, so important at theatre-going time. General contractors, G. E. Wallis & Sons.



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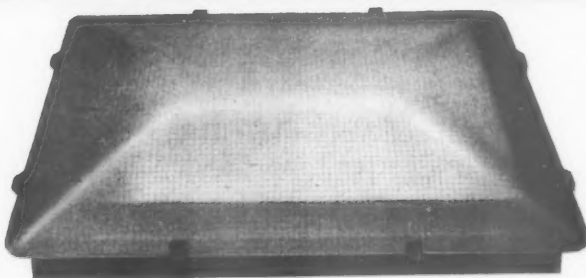
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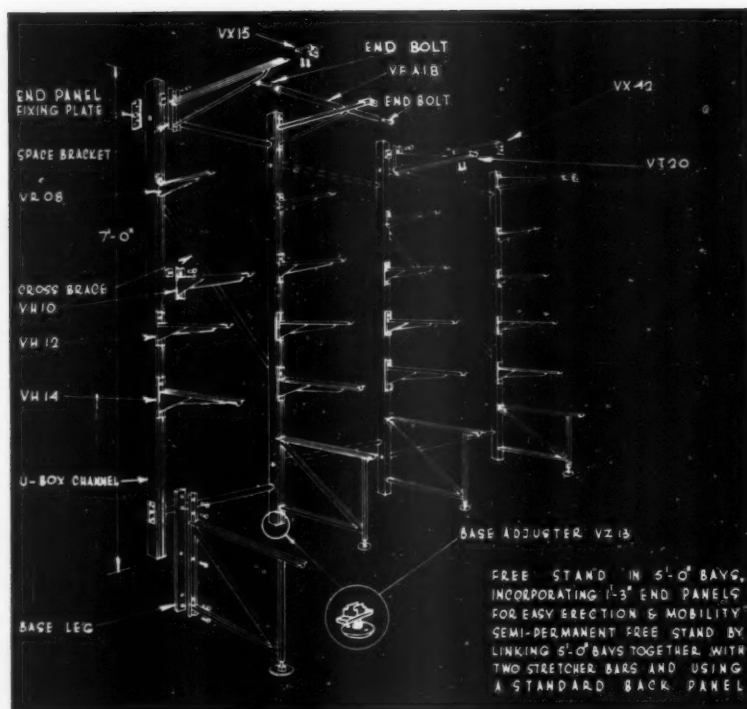


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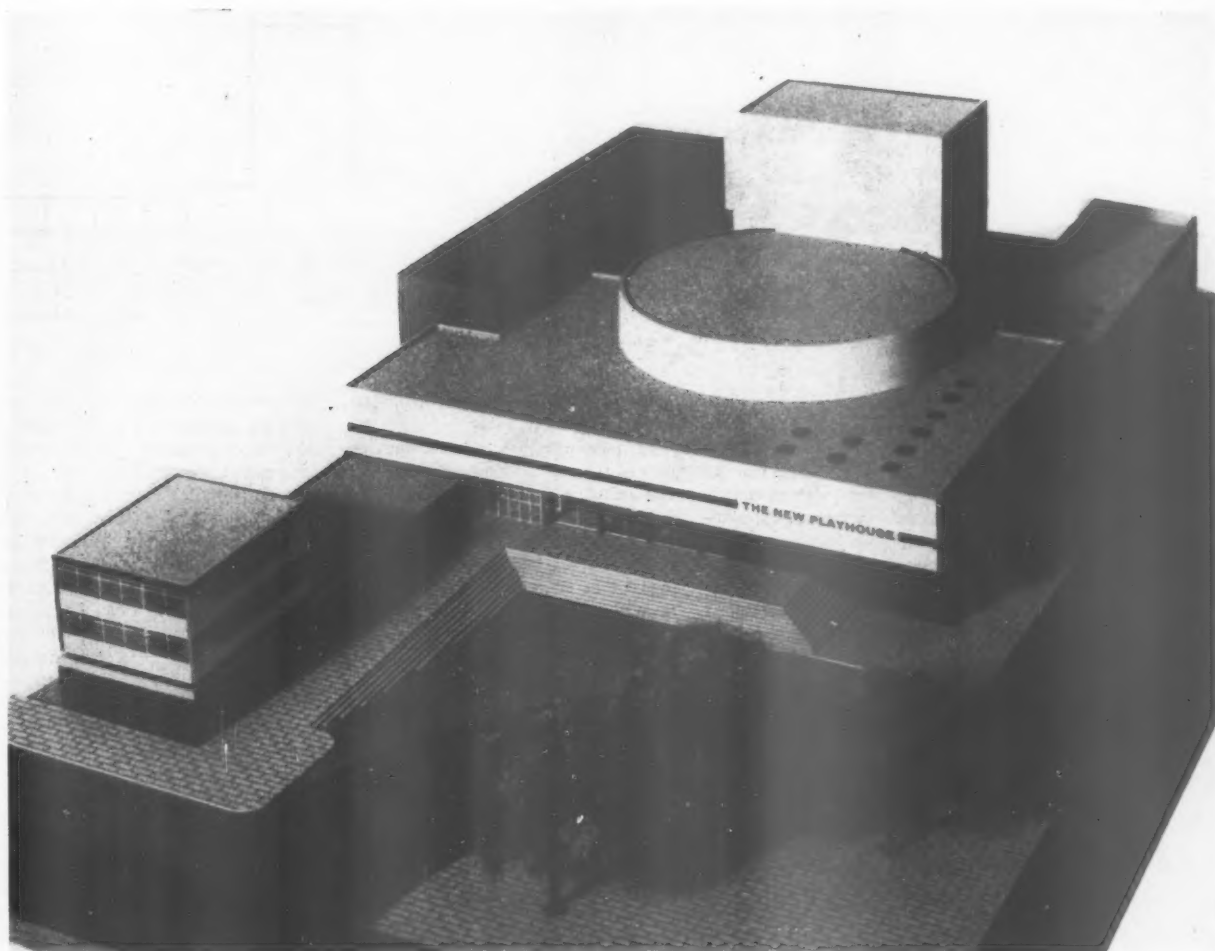
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critical study

PROJECT FOR THE PLAYHOUSE THEATRE, NOTTINGHAM



"This will be a modern English theatre in the grand manner well up to continental standards of circulation space," writes Kenneth King, group architect for Coventry's Belgrade Theatre, in this study.

Nottingham's projected new civic theatre, The Playhouse, is designed by Peter Moro and will replace a smaller existing theatre of the same name. It will seat 770, of whom 520 are in the stalls and 250 in the balcony. The estimated cost of £300,000 is to be met out of a trust fund set up for any object "which is for the improvement of Nottingham" and is therefore independent of the rates. It should permit the high standard of finishes and equipment which such a building deserves. Completion will be in autumn 1962.

In addition to the theatre itself there is to be a projecting wing flanking the main entrance, containing actors' flatlets, an art gallery, a cafe, restaurant and kitchen. At the stage end there are television and broadcasting studios in a self-contained separate block, integrated architecturally with the remainder of the scheme and sharing a service courtyard with theatre backstage area.

These will add about £50,000 to the cost, but are expected to be a useful source of income.

The site is that of an old circus hall and some adjoining property. When this is demolished an unsightly flank of the Albert Hall will be exposed. This will be screened to some extent by the projecting wing and the angle contained between this and the entrance front will be the main approach off Wellington Circus. It is possible that the Albert Hall may eventually be acquired by the Corporation, the flank remodelled, and its tower, which fulfils no useful purpose and threatens to dominate the theatre scheme, demolished. Until then, the terminal block containing the flatlets at the end of the projecting wing will minimise this effect.

With spacious foyers sweeping round the clearly defined circular shape of the auditorium, this will be a modern English theatre in the grand manner

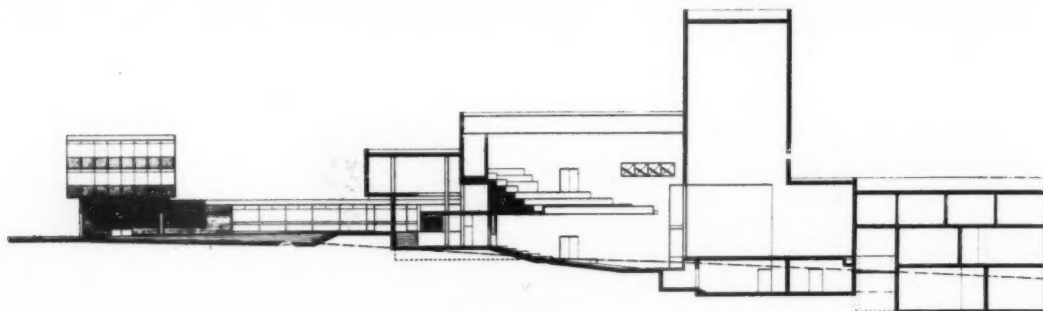
well up to continental standards of circulation space, and the skilful arrangement of levels and spaces will form an exciting setting to the movement of the audience. These levels are such that surmounting the broad flight of steps to the entrance foyer a half flight up or down leads to the rear balcony and stalls entrances respectively.

Side exits in each case are at the main upper and lower foyer levels. The administrative offices are at a mezzanine level between these, and overlooking the lower foyer, connecting directly with the dressing rooms, stage left, and a separate outside entrance. There is a coffee bar and bar at lower foyer level, and a club room, bar and exhibition space in the upper foyer. The restaurant off the entrance foyer, seating 86, with kitchen below, can be used separately when the theatre is closed and can overflow if necessary into the cafe.

Inside the auditorium the circular shape and the sweep of the balcony almost up to the proscenium opening on either side will help the subtle and important

critical study

PROJECT FOR THE PLAYHOUSE THEATRE, NOTTINGHAM: continued



Long section

link between actor and audience, but leaves the problem of indifferent sight lines at the two extremities. At stalls level the control booths at the rear for remote lighting and sound control during broadcasts terminate the seating and conveniently occupy the area left by the curve of seating and auditorium walls on different centres. At balcony level this problem, combined with the levels, has obviously proved more difficult to solve and the projection box for slides and 16 mm. films does not fit in so well. It may be useful acoustically as a projection in the otherwise unbroken curve of the auditorium wall, the circular shape of which can be difficult acoustically. It will be possible to remove some of the front seats in the stalls and either replace them with a sectionalised forestage capable of many different arrangements, or expose an orchestra pit. An acoustic hood will be suspended above it which will also contain lighting and apparatus connected with television broadcasts, and presumably further front-of-house lighting from a lower angle, for which

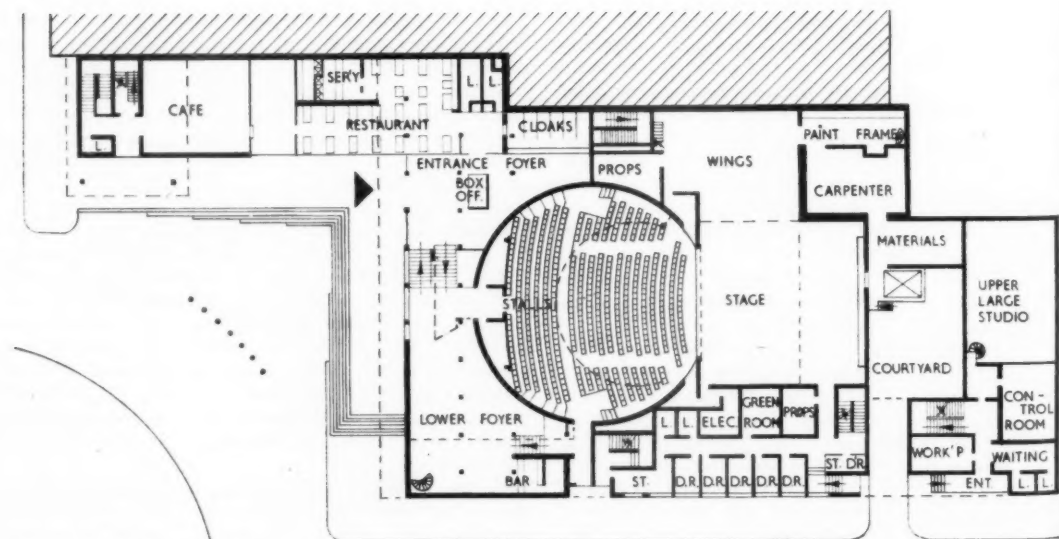
most producers will undoubtedly ask, can be provided.

The stage and backstage accommodation is generous and comprehensive. It will include among other things a paint-frame and workshop insulated acoustically from the stage, a laundry, and a rehearsal room large enough for marking out of full sets. The proscenium opening is 32 ft. wide and the stage 50 ft. deep. The large wing space on stage right will easily accommodate a truck large enough to take a full set and there is space for another truck to move forward from the space at the rear. The restricted wing space on stage left, as shown on the plan, is to be increased, and the grid level raised to improve flying out conditions.

The connection between the stage workshop area and the basement scenery and flat store is made difficult by being on different levels and unless the regulations permit the use of the understage space, the storage capacity will be scarcely adequate for the prodigious amount of scenery and impedimenta that a Rep Company accumulates

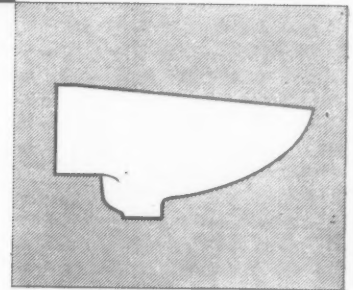
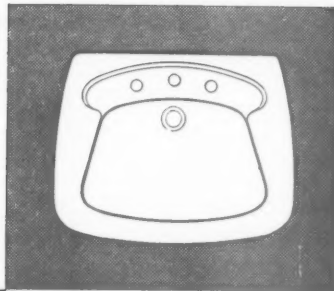
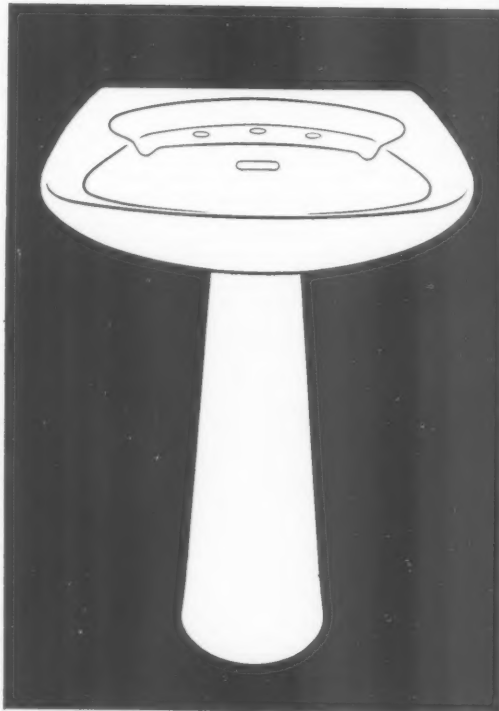
in a remarkably short time. It is questionable whether it is policy to attempt to do so on a valuable and restricted site if separate storage space can be had nearby and the space used to greater advantage for purposes which cannot be dissociated from the theatre building. A seating capacity of 770 is almost ideal for a theatre of this type, to give atmosphere and intimacy. Financially, it is doubtful whether it is sufficient to take advantage of good box office plays and fuller houses in the latter half of the week, this fluctuation in numbers being one of the management's perennial problems.

None of these shortcomings, which in any case will probably be ironed out in the detailed development of the scheme, can affect the overall conception, which is bold and imaginative. By providing such a variety of cultural and social amenities the theatre is assured of being used to the utmost, while its design should create that sense of occasion which makes going to the theatre the pleasurable and civilised experience that it ought to be.



Ground floor plan

design



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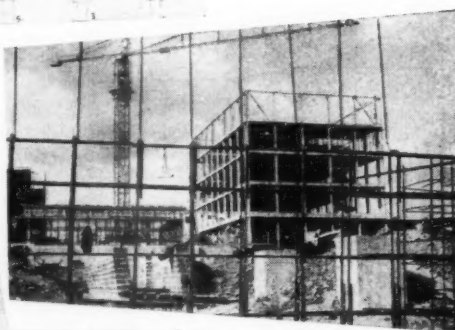
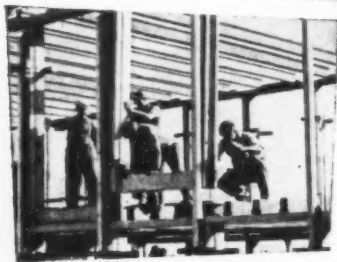
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CONCRETE CONSTRUCTION

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HOUSE

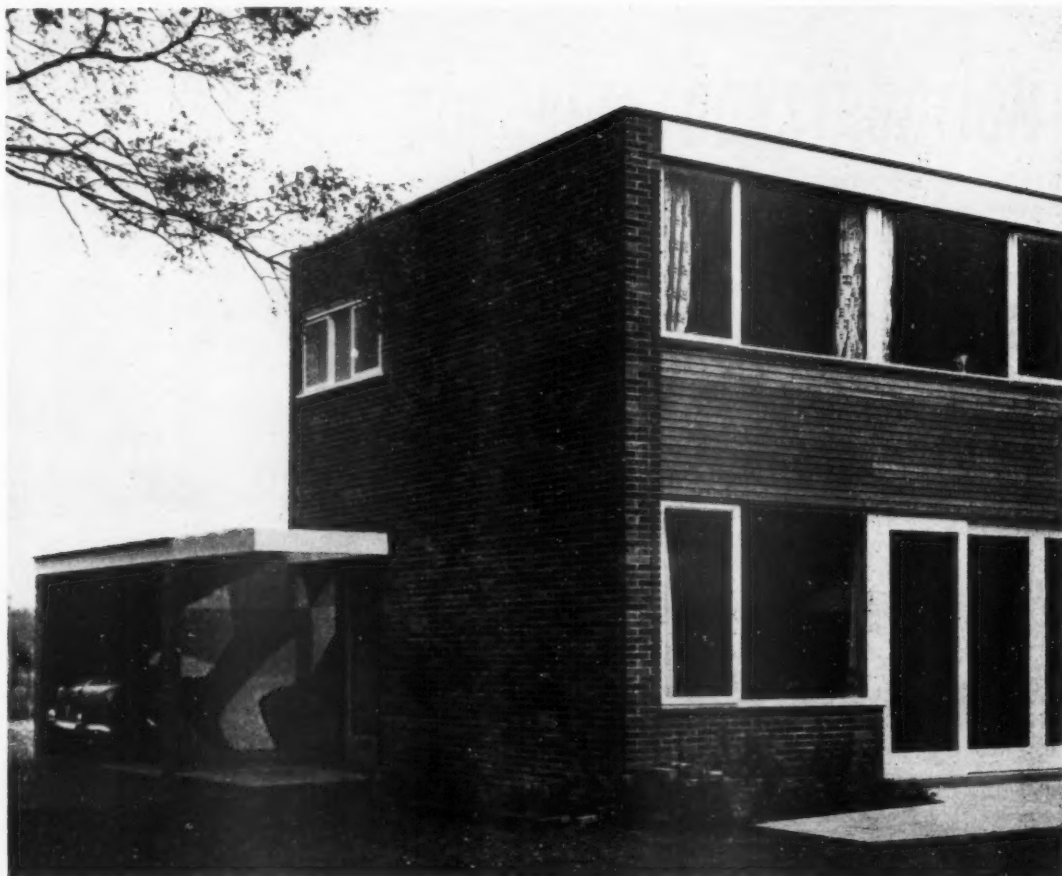
at ABINGTON, CAMBRIDGESHIRE; designed by DOUGLAS HARDING OF HUGHES and BICKNELL

The planning of this large 4-bedroom house was partly controlled by the requirement of exhibiting the client's collection of paintings and sculpture. It has an entirely blank north wall, this area of the house being top-lit through the stairwell. The south wall is framed up in steel and has continuous glazing on both floors.

The house from the south.

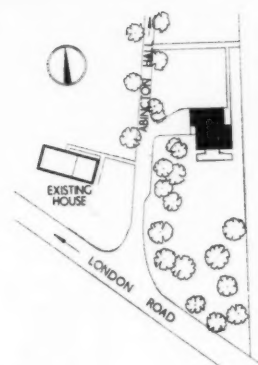


building illustrated

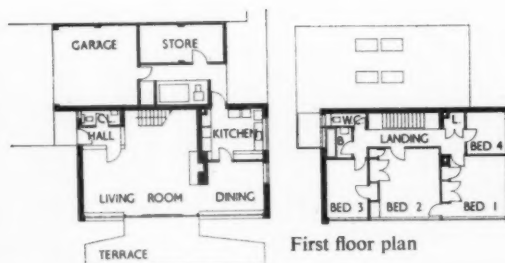


View from the south-west. The main part of the house has a neo-Palladian simplicity: the brick walls wrap around three sides and continue on the south side as window sills. Had the severity been maintained consistently the house might have possessed a clear, classical quality; the near-symmetry of the south side, and the quite indeterminate quality of the single-storey block (containing a double garage, a large store, boiler and fuel stores), and the mosaics by the front door, however, have compromised the design.

Below: the living room showing the stair, which has mahogany treads supported on a steel cage. The back of the room is lit from a skylight over the stairwell. The entrance lobby is separated from the living room by a timber screen, partly glazed and partly consisting of bookshelves.



Site plan

Ground floor plan
[Scale: $\frac{1}{4}'' = 1' 0''$]

First floor plan

analysis

CLIENT'S REQUIREMENTS

A modern house with well lighted wall space for paintings and many objects of art, efficient automatic heating and a high standard of thermal insulation, a well equipped kitchen, and wide window sills for indoor plants.

SITE

The site is at the entrance to Abington Hall Estate, opposite the Gate Lodge. Abington Hall is an eighteenth century mansion now used by the British Welding Research Association, and the client is Director of Research there. The site was thickly wooded at its south end, and an embankment restricts the view to the south. The trees have been cleared from the centre to form a garden, leaving a screen on south and west sides.

PLANNING AIMS

To take advantage of the agreeable site and existing trees; to provide a suitable background for the client's paintings. To link the interior with the garden without sacrificing a feeling of shelter and enclosure, and to minimize circulation area.

The house is placed with its south wall facing the clearing in the site, and this wall has a large area of glass, with sliding doors opening on to a terrace. The living area also has a large window framing the view from the dining area looking east. Staircase and landing have a large rooflight, leaving the wall space for pictures, and the rooflight has a laylight beneath with diffusing glass. There are fluorescent lights above the laylight and in a concealed lighting trough on the landing. The staircase has been kept as open and "detached" as possible so as not to interrupt the visual flow from the living room to the upper level. The south wall of the living area while largely glazed has low wide polished slate window sills to accommodate indoor plants and to give a sense of enclosure to the room.

The existing drive provided easy access to the house and a double garage without doors has been provided. The beams supporting the garage roof are painted to link up with the mosaic panels under the porch which were designed by Tony Bartl. The porch roof is covered with Perspex so that these mosaics are not overshadowed.

SUMMARY

Ground floor area: house, 718 sq. ft.; garage, 512 sq. ft.

Total floor area: 1,948 sq. ft.

Type of contract: RIBA.

Tender date: June, 1956.

Work began: August, 1956.

Work finished: April, 1957.

Cost of foundations, superstructure, installations and finishes, excluding mosaic panels provided by client: £5,354.

Cost of external works, including drainage and septic tank: £226.

Total cost, £5,580 (prices based on final account).

cost per sq. ft. s d

Insurances and temporary water supply
(No contingencies.)

6½

Work below ground floor level

Concrete strip foundations and stanchion pads

Fletton brickwork.

4-in. site concrete on hardcore.

Sleeper walls.

4 7½

STRUCTURAL ELEMENTS

s d

Frame or load-bearing element

1 0½

Welded steel frame to south elevation with beams carrying first floor and roof joists and partitions.

External walls

10 4½

2-in. handmade facings.

House: 11-in. cavity brick with Bruni teak facing on softwood framing to south elevation.

Garage and store: 4½-in. brick.

Ratio: $\frac{\text{solid wall}}{\text{floor area}} = \frac{0.86}{1}$

Windows

2 6½

Softwood. Opening lights enlarged ejma section.

Ratio: $\frac{\text{windows}}{\text{floor area}} = \frac{0.24}{1}$

External doors

5½

All fully glazed. Sliding doors to living room. No doors to garage.

Ratio: $\frac{\text{doors}}{\text{floor area}} = \frac{0.068}{1}$

Upper floors

1 6

8-in. × 2-in. joists notched into steel beams.

1-in. t. and g. softwood boards.

Area: 640 sq. ft.

Staircase

1 0½

Steel tread supports and balustrade, mahogany treads and handrail.

Width: 3 ft. 2 in. Total rise: 8 ft. 5 in.

Roof

1 9

House: 7-in. × 2-in. joists notched into steel beams.

2-in. compressed strawboard on 1-in. glass fibre.

Area: 675 sq. ft.

Garage and store: 8-in. × 2-in. and 6-in. × 2-in. purlins for asbestos.

Area: 488 sq. ft.

Rooflights

10

Rooflight and laylight over staircase well.

The laylight is timber framed, with diffusing glass. Acrylic sheet in garage and store.

Number of lights: 1 patent glazing; 4 acrylic sheet.

Total area: 96 sq. ft.

Glazing

1 7

Double glazing throughout. Fixed lights, ⅝-in.

drawn sheet with 2½-in. air space. Opening

casements.

(Cost of rooflight glazing included under rooflights.)

Total of structural elements: 21s 2d

PARTITIONS AND FITTINGS

Internal partitions

1 0

Type of partition

Area in sq. yds.

3-in. breeze

52

4½-in. brick

48

9-in. brick

10

Studwork

13

analysis

Screens

Hardwood bookcase fitting, forming partition between entrance and living room, including door.

Internal doors

12 single, flush ply, painted.

Ironmongery

Doors, anodized aluminium, windows, satin c.p. Sliding gear.

Fittings

Kitchen cupboards, ironing machine cupboard, hot cupboard, linen cupboard. Built-in hanging cupboards, bathroom cupboards.

Total of partitions and fittings: 6s 9½d

FINISHES

Floor finishes

Type of finish	Area in sq. ft.	Price per sq. yd.
Gurjun strip	529	50s.
Lino tiles	121	29s.

(Prices include joists, wall plates and insulating quilt under gurjun; screed and d.p. membrane under lino.)

Wall finishes

House: plastered; gaboon ply to stud partition; white glazed tiling.
Garage and stores: fairfaced brickwork.

Ceiling finishes

Ground floor and bathroom, plasterboard.
Cloakroom and landing, perforated hardboard with glass fire mat above for sound absorption.
Bedrooms, ½-in. fibreboard.

Roof finishes

House: ½-in. asphalt. Area: 735 sq. ft.
Garage and store: corrugated asbestos. 488 sq. ft.

Decorations

Walls and ceiling, water paint.
Softwood, oil paint.
Hardwood and plywood waxed internally, untreated externally.

Total of finishes: 8s 7d

SERVICES

External plumbing

Lead flashings. Asbestos box gutter and r.w.p. to garage.
Cast iron internal r.w.p.s.

Hot and cold water supplies

Calorifier in kitchen. Copper supplies.

Sanitary fittings

Type of fitting	Number of each type
Bath	1
Basins	2
Sink	1
W.c.'s	2

s d

11½

Heating and ventilation

Sectional boiler. Pressure jet oil burner.
600 gallon oil tank. Cast iron radiators.
Pumped circulation.

6½

Solid fuel fire with underfloor draught in living room.

Internal temperatures: ground floor, 70 deg. F.; first floor, 60 deg. F.

1 2½

Electrical installation

Type of point Number of each type

Light points 18

13-amp. sockets 12

Cooker panel 1

Immersion heater 1

(Cost includes £29 for supply cable contribution and 5 fluorescent fittings.)

Total of services: 13s 2½

Total per sq. ft. of floor area:

£5.354 (excluding drains and external works)

s d

7 8½

2 3½

10

1 6

1,948 sq. ft. (measured inside external walls)

54 11½

External works

Site clearance, tarmac, paving slabs, entrance canopy.
Septic tank

COST COMMENTS

Not enough houses have been fully analysed in the JOURNAL as yet from which to draw firm conclusions about economical construction in the better class house. Clients, of course, have what they want and they pay for it. Houses recently analysed were Russell Diplock's at Lewes (AJ, March 19, 1959), and four others on March 13, 1958. The Lewes house shows a close similarity in cost with this one at Abington. Remove the difference in work below ground floor level, the difference in cost of special fittings and services (3s. 1d.), make an allowance of, say, £2 per sq. ft. for the difference in size, and the Lewes figures become £5,640—remarkably close to Abington's.

It is also instructive to refer to the four single-storey houses (AJ, October 16, 1958). 55s. per sq. ft. is the operative figure. This was found to be the cost of building good, single-storey dwellings of around 1,000 sq. ft. floor area. Two-storey houses with similar finishings and fittings can be built for a similar price per sq. ft.—provided they are about twice the size, that is, a total floor area around 2,000 sq. ft. These cost studies also make clear where and by how much single-storey buildings are more expensive primarily, of course, in the foundations and roof.

At Abington the frame, external walls and windows cost the same as at Lewes, where a light steel frame was employed for continuous glazing. Although there is much more brickwork here, it remains dearer than a more traditional elevation, partly owing to the use of 2-in. facing bricks.

The roof is quite cheap. One can hardly conceive a simpler construction, and the finished cost is as low as 3s. per sq. ft.—about £300.

The client paid for a good central heating system and an open fire. This section of the account comes to £750. It makes one wonder how Quentin Hughes's house at Oxted (AJ, March 13, 1958) is faring, which had a very cheap installation, £470, employing polythene heating pipes with an oil-fired boiler.

1 5½

CONTRACTORS

General contractors: Harding and Sons. Sub-contractors: Heating: Wontner-Smith, Gray & Co. Electrical installation: H. W. Scott & Son. Asphalt roofing: Cambridge Asphalt Co. Ltd. Plastering: Biggs & Hawes. Hardwood flooring: Watts & Son.

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3½

11½

10

1 6

JOURNAL
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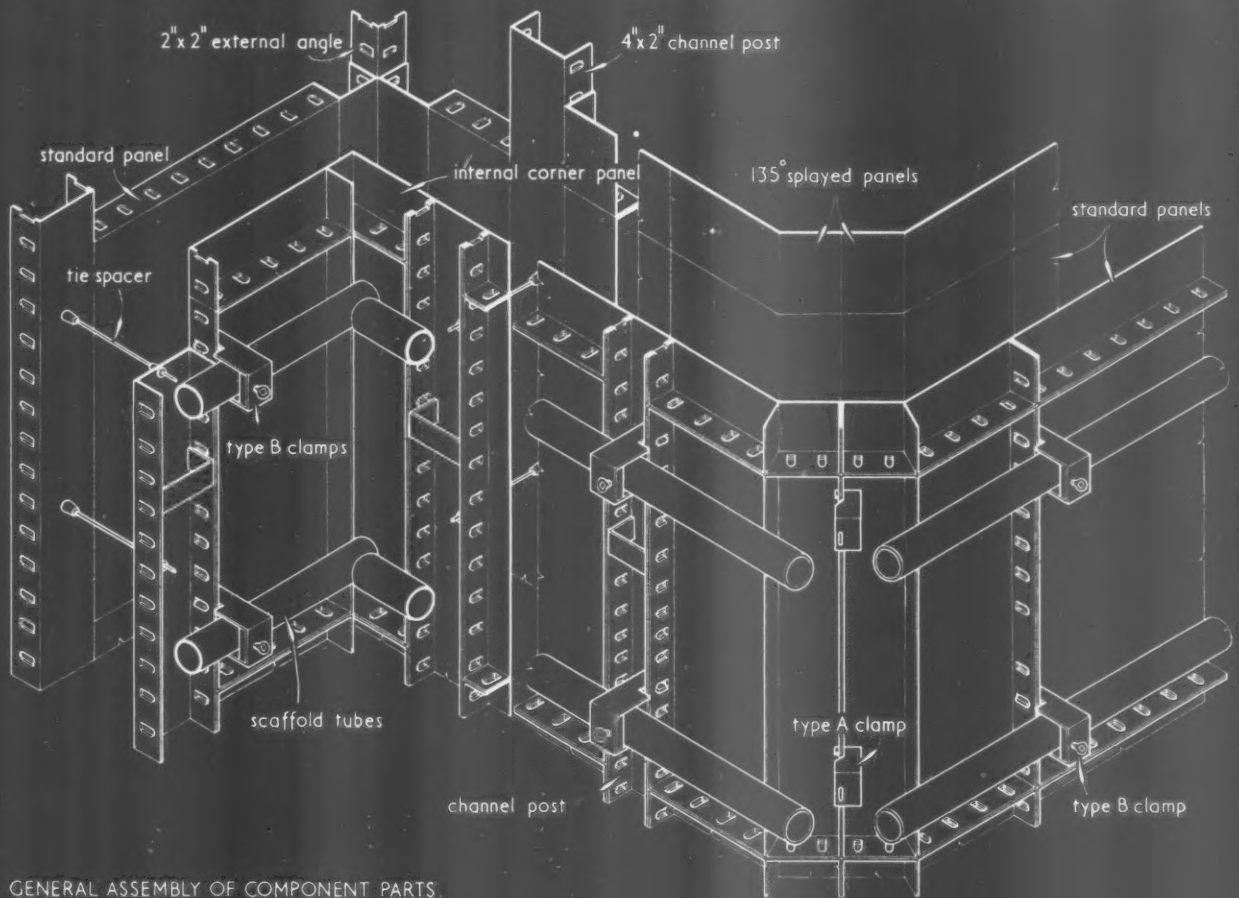
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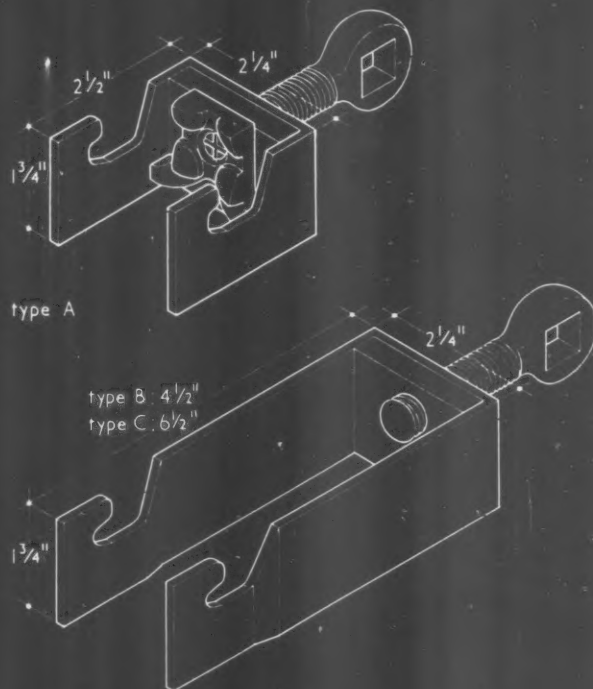
CONCRETE METAL FORMWORK

6.Z6
9Z.9

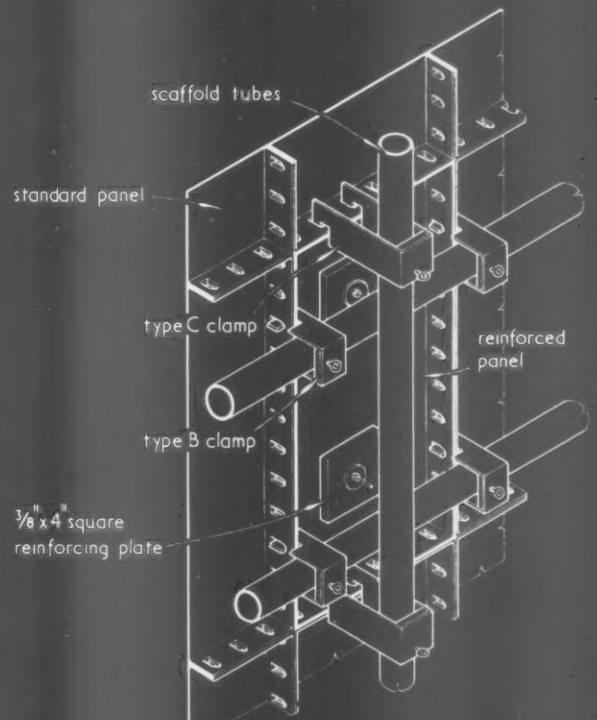
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GENERAL ASSEMBLY OF COMPONENT PARTS.



TYPES OF CLAMP.



DETAIL OF REINFORCED PANEL.

6.Z6 · RAPID METAL FORMWORK

This Sheet describes Rapid metal formwork which can be used for all types of in-situ concrete construction to give a flat, uniform surface and sharp corners. The drawings on the face show the basic components required for architectural use: units are also available for engineering applications.

Components: description, sizes and weights

The system consists of $\frac{1}{8}$ -in. steel panels with 2-in. boundary flanges slotted at 2-in. centres to take fixing clamps. Immediate and accurate panel-to-panel alignment is obtained by the direct engagement of tapered hooks on the clamps with tapered slots in the panel flanges. As a result of this, and the special sharp arrises on the panels and channels, no "lipping" occurs. General overall alignment is effected with scaffold tubing.

Standard panels: These are available in the following range of sizes and all panels over 2 ft. 0 in. by 1 ft. 0 in. have strengthening ribs across the centre.

Size	Approximate weight in lb.
6 in. × 6 in.	2½
1 ft. 0 in. × 6 in.	5
1 ft. 0 in. × 1 ft. 0 in.	8
1 ft. 6 in. × 6 in.	7
1 ft. 6 in. × 1 ft. 0 in.	10
1 ft. 6 in. × 1 ft. 6 in.	15½
2 ft. 0 in. × 6 in.	8½
2 ft. 0 in. × 9 in.	10½
2 ft. 0 in. × 1 ft. 0 in.	15
2 ft. 0 in. × 1 ft. 6 in.	21½
2 ft. 0 in. × 2 ft. 0 in.	28
3 ft. 0 in. × 6 in.	13
3 ft. 0 in. × 9 in.	17½
3 ft. 0 in. × 1 ft. 0 in.	25
3 ft. 0 in. × 1 ft. 6 in.	35
3 ft. 0 in. × 2 ft. 0 in.	43

Reinforced panels: These are used with bolts, as shown in the drawing on the lower right of the face of the Sheet, to tie and distance parallel walls of shuttering. The reinforcing plates are 4 in. square by $\frac{3}{8}$ in. thick and holes for $\frac{1}{2}$ -in. tie rods are provided. Reinforced panels are 2 ft. 0 in. by 1 ft. 0 in. and weigh approximately 18 lb.

Internal corner panels: These may be used vertically for 90° internal angles at wall junctions, horizontally, for angles between walls and floors, or at beams.

Size	Approximate weight in lb.
1 ft. 0 in. × 6 in. × 6 in.	8
1 ft. 0 in. × 1 ft. 0 in. × 6 in.	11
1 ft. 6 in. × 6 in. × 6 in.	10½
1 ft. 6 in. × 1 ft. 0 in. × 6 in.	16½
2 ft. 0 in. × 6 in. × 6 in.	14½
2 ft. 0 in. × 1 ft. 0 in. × 6 in.	20½
3 ft. 0 in. × 1 ft. 0 in. × 6 in.	30

Slotted external angles: Used between the flanges of adjacent straight panels to form a 90° external angle, the slotted external angle is 2 in. by 2 in. and weighs approximately 1½ lb. per linear foot.

135° corner panels: Internal and external splayed corner panels are available for 135° angles. The panel is 2 ft. 0 in. high, and the sides of the angle 4 in. and 8 in. wide. The internal panel weighs approximately 15 lb. and the external, 16 lb. The internal panels, in addition to their use for vertical angles between walls, can be used horizontally at the top of the formwork as a chute for placing the concrete.

Channel posts: Channel posts are used vertically,

as shown on the face of the Sheet, to tie and distance parallel walls of shuttering and form an integral part of the shuttering face. They can be left in position, in climbing shuttering, to hold the intermediate panels while the lower ones are removed and fixed above. They can also be used to make up exact lengths and also horizontally for beam and slab shuttering. Bolt holes are provided at 1 ft. 0 in. centres and 6 in. from each end, to take $\frac{1}{2}$ -in. diameter bolts. Three sizes are available: 4 in. by 2 in., 3 in. by 2 in., and 2 in. by 2 in., weighing approximately 5½, 4½ and 2½ lb. per linear foot, respectively. The standard lengths are 4 ft. 0 in., 6 ft. 0 in., 8 ft. 0 in. and 10 ft. 0 in.

Clamps: Three sizes of clamp are available; type A for adjacent panels, type B for adjacent panels and one scaffold tube, type C for adjacent panels and two scaffold tubes or one 4 in. by 1½ in. r.s.j. They weigh approximately 1½, 1½, and 1½ lb. respectively.

Additional fittings: Fittings which are not illustrated include internal corner posts; heavy channel posts, for use with r.s.j.s where a large volume of concrete is to be poured rapidly; flexible forms for curved work; access panels for large sections of formwork; spreader ties and other accessories. Tie rod spacer units are available consisting of conical rubber bushes (cones), set pins and expendable tie rods.

Erection

The formwork is most suitable for double-face work. Where there is a foundation or floor slab, an upstand not less than 2 in. and not more than 5 in. high should be formed to provide an abutment for the base of the formwork. Carefully cast, this upstand will assist the alignment of the formwork throughout. Erection should begin with a corner or end panel, followed by a small standard panel, channel post, two standard panels, channel post, two standard panels, and so on. For maximum rigidity, the reinforcing ribs of the panels should be vertical. The bottom row of panels and channel posts is secured with type A clamps, finger-tight, as near the centre of the panels as possible: the horizontal tubular walings are then fixed with type B clamps and the type A clamps removed. A second row of panels is fixed in the same way, but with additional type A clamps placed horizontally near the intersections of four panels. All clamps are left finger-tight until the required height has been erected and then tightened with a bar, working along each vertical row in turn from one end. For walls up to a height of 4 ft. 0 in. maximum to be poured in one operation, reinforced panels can be used in place of channel posts.

Finish

Clamps are sherardized, panels and other formwork painted, except on the face for concrete.

Maintenance

Panels, channels and clamps should be thoroughly cleaned with a wire brush immediately after stripping and oiled with mould oil for future use or storing.

Further information

The manufacturer maintains a technical advisory service available to give information, supply detailed layouts and quotations.

Compiled from information supplied by:

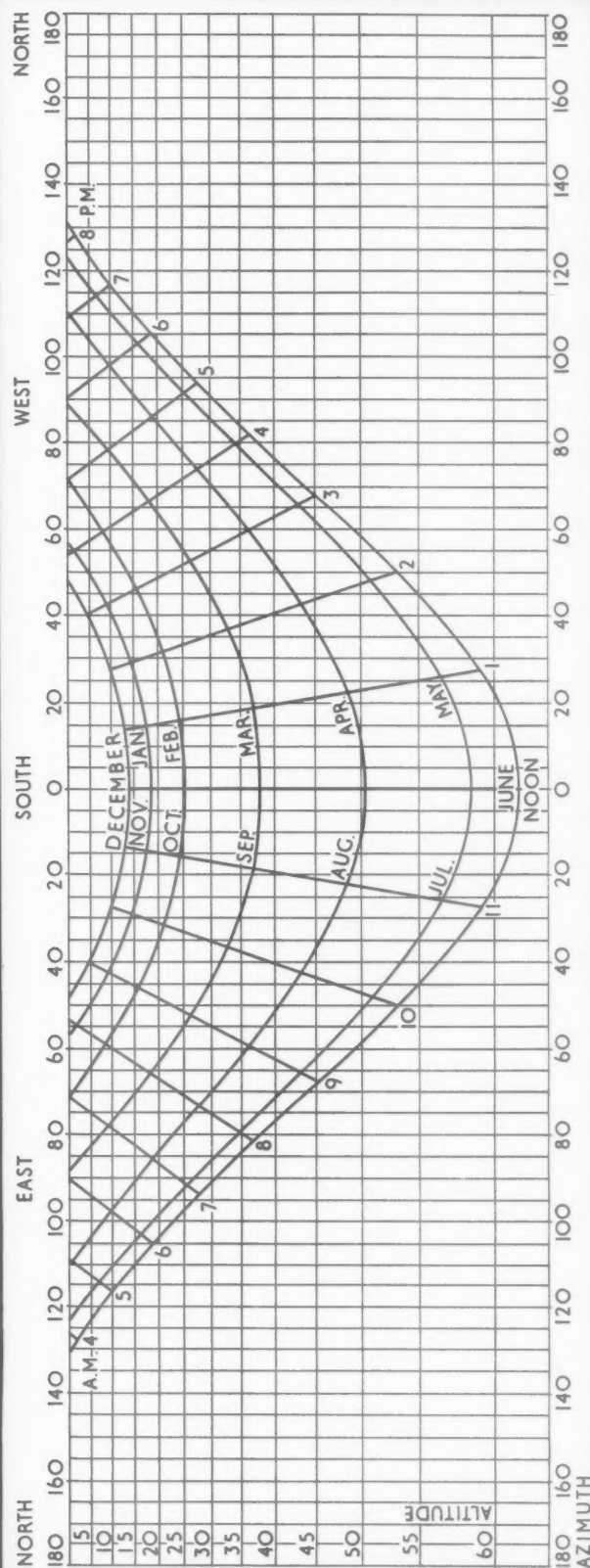
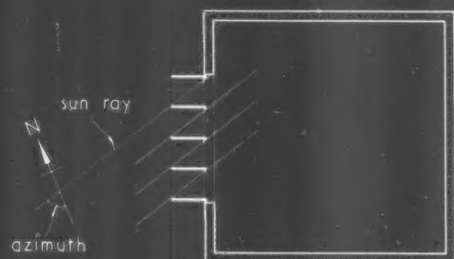
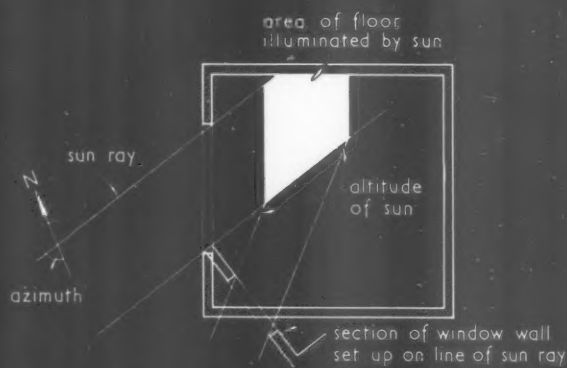
Rapid Metal Developments Limited.

Address: 209, Walsall Road, Perry Barr, Birmingham, 22b.

Telephone: Birchfields 6021-5.

DESIGN DATA | APPARENT MOVEMENT OF SUN

The Architects' Journal Library of Information Sheets 731. Editor: Cotterell Butler, A.R.I.B.A.



4.A2 APPARENT MOVEMENT OF SUN: ARCHITECTURAL APPLICATIONS : 1

This Sheet presents a diagram which gives all the information about the movement of the sun likely to be required for architectural purposes in England and Wales. In addition to its application for drawings, it can be used on models in place of a heliodon. The diagram should be used in conjunction with the notes and drawings on this Sheet and Sheet 4.A3 which gives further examples of its use. Sheet 4.A1 gives a more approximate guide to the apparent movement of the sun, data for the solstices and equinoxes only being given.

Diagram

The diagram is graduated horizontally in degrees measured from south (azimuth) and vertically in degrees of altitude. The curved lines represent the movement of the sun during one day at the middle of each month as seen at latitude 52° N. The intersecting straight lines represent hours (G.M.T.). The altitude and azimuth of the sun at any given time may be read from the scales on the sides of the diagram.

The diagram may be used in three main ways:

1. To give the angle of the sun at any given time.
2. To determine the duration of insolation at a given point (see Sheet 4.A3).
3. To enable models to be illuminated to simulate sunlight at any given time.

The slight variations between solar noon and G.M.T. noon are not likely to be of any architectural significance as the duration of insolation is of more importance in designing than the exact time at which the sun falls on a particular spot. The diagram is worked out for latitude 52° N. (just north of London) but may be used anywhere in England and Wales with reasonable accuracy. The error in noon altitude is less than 1° south of Nottingham and north of Southampton, and 2° at York.

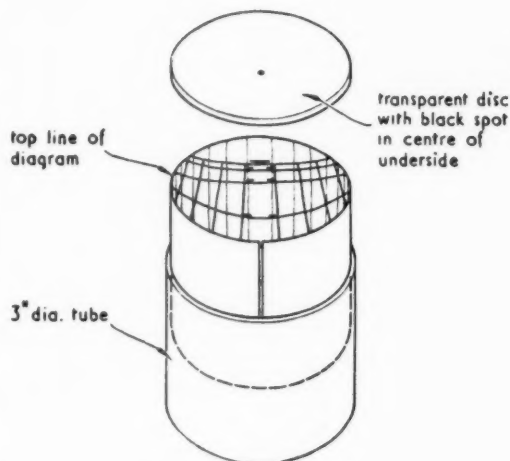
Sun Angles

The small drawings on the left face of the Sheet show how readings from the main diagram may be used to determine the penetration of the sun into a room at a given time; to design shielding devices; to calculate the time at which the sun will appear over or round an obstacle and to draw the shadow cast by an obstacle.

Use of Diagram with Models

To establish lighting conditions on a model to represent the sun at any given time, the diagram may be used in the following manner. It should

be cut out along the bounding lines and placed inside a tube of 3 in. internal diameter. A transparent disc (Perspex or glass) to fit over the top of the tube should be provided, with a black dot in the centre of the underside as shown in the sketch below. The top line of the diagram must be in contact with the underside of the disc.



The cylinder should be placed on the model with the 0° azimuth line facing the model's true north. The model should be illuminated by a single source of light (unshaded light bulb). The point on the diagram on to which the shadow from the black dot falls will indicate the time of day and the time of year simulated. By moving the light source any time of day or year can be represented. The distance of the light source from the model should not be less than six times the width of the part of the model under consideration. This limits the divergence of the light rays to less than 5°. (The divergence may be halved by doubling the distance from the light source.) Where special accuracy is required, it may be more convenient to use the sun itself as the source of light, but the model must be propped up and its angle adjusted according to the sun's position.

Compiled by Peter Burberry, A.R.I.B.A.

working detail

WINDOWS: 74

WINDOWS: OFFICES IN HELSINKI

Alvar Aalto, architect (material supplied by Jan Thompson)



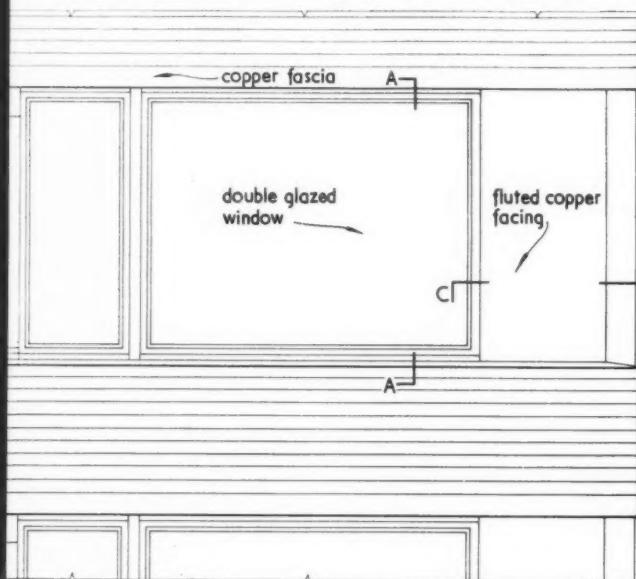
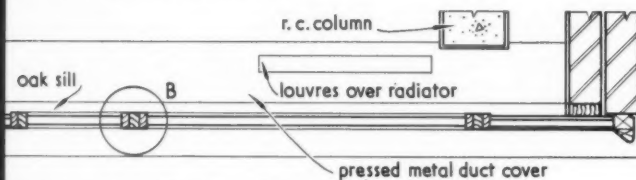
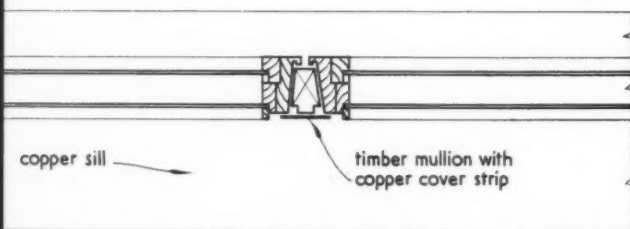
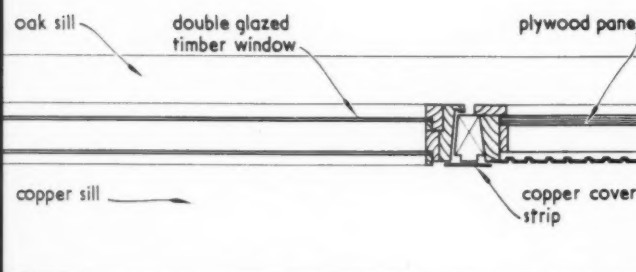
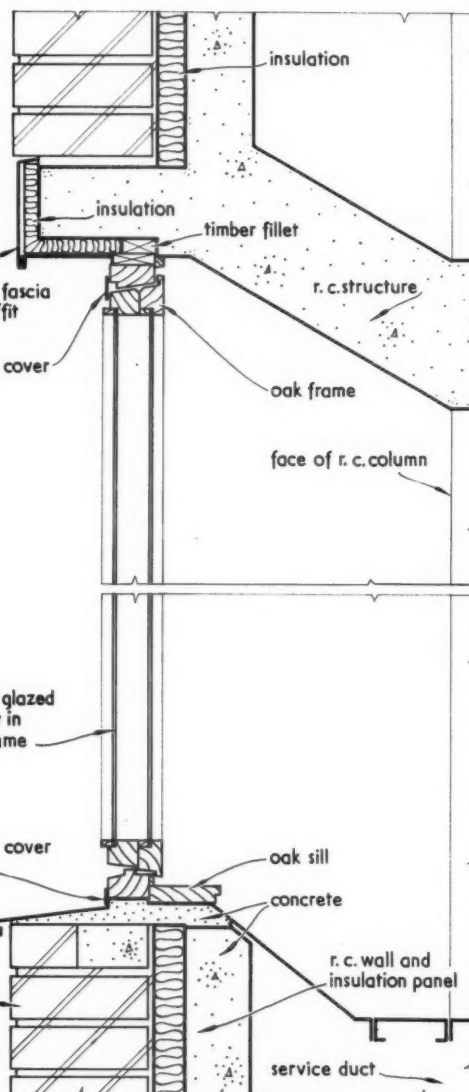
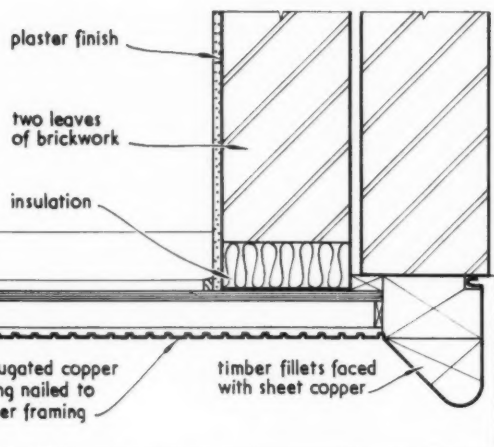
This detail shows what must be one of the most sophisticated uses of the horizontal brick under-sill panel. Note how the proportion of window height to wall height has been altered by cranking the floor slab upwards. This permits light to fall into the room at a more favourable angle and gives the windows a better proportion, without altering either the height of the sill relative to the floor or the height of the ceiling. Since the height of the windows and their attendant copper flashings is much greater than the height of the brickwork, the design evades that unhappy "streaky bacon" effect which occurs when the heights of the two are nearly equal. (See English blocks of flats, circa 1930-35.)

working detail

WINDOWS: 74

WINDOWS: OFFICES IN HELSINKI

Alvar Aalto, architect (material supplied by Jan Thompson)

ELEVATION. scale $\frac{1}{4}" = 1' - 0"$ PLAN. scale $\frac{1}{4}" = 1' - 0"$ DETAIL AT B. scale $1" = 1' - 0"$ PLAN AT C-C. scale $1" = 1' - 0"$ SECTION A-A. scale $1" = 1' - 0"$ 

note: figured dimensions in feet and inches are approximate

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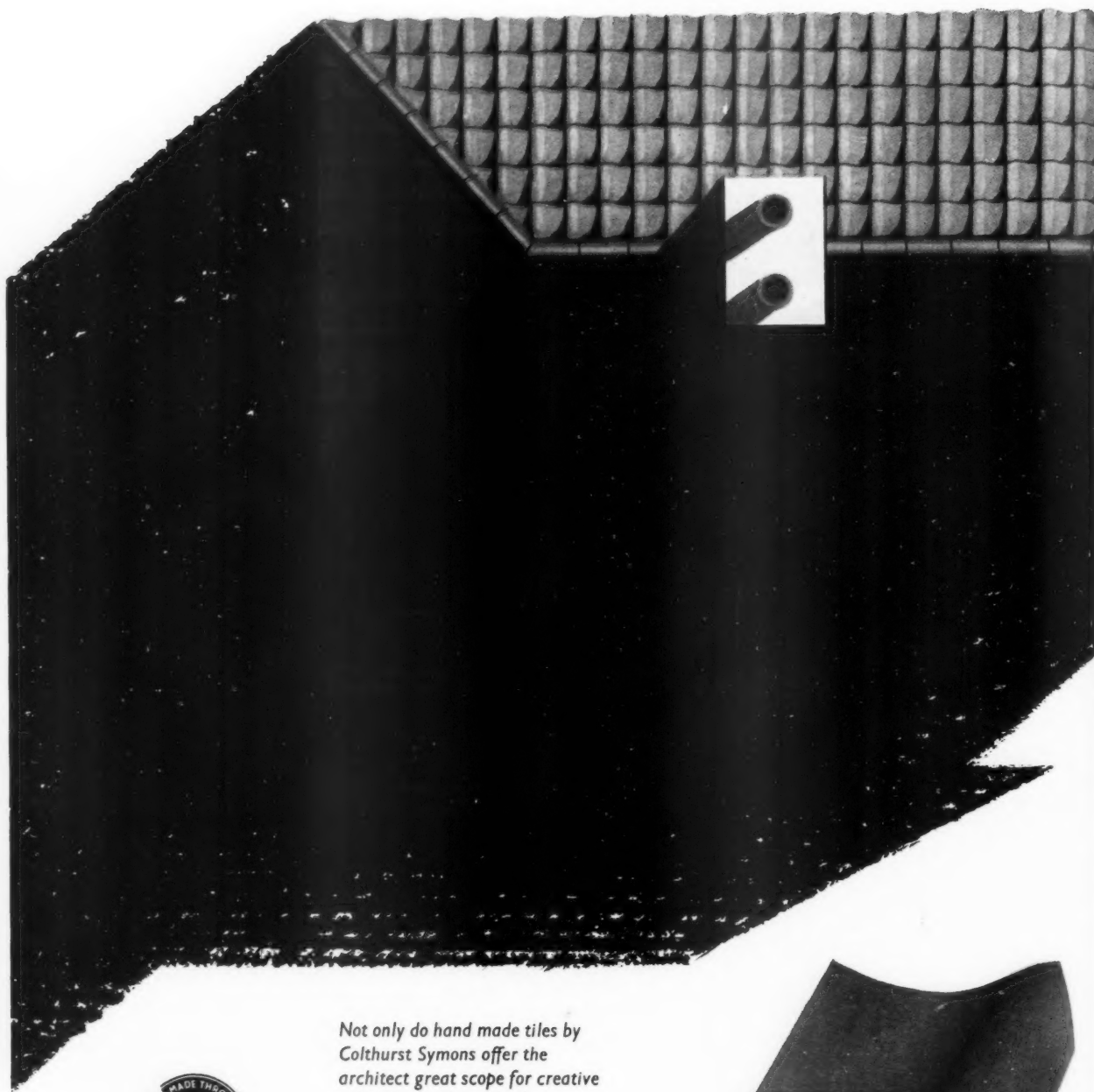
Sun Life Assurance Society building, Cheapside. Architects: Messrs. Green, Lloyd & Son. Contractors: Messrs. Holland & Hannen and Cubitts Ltd. Semastic Decorative and Vinylex Tiles laid by Semtex Ltd.

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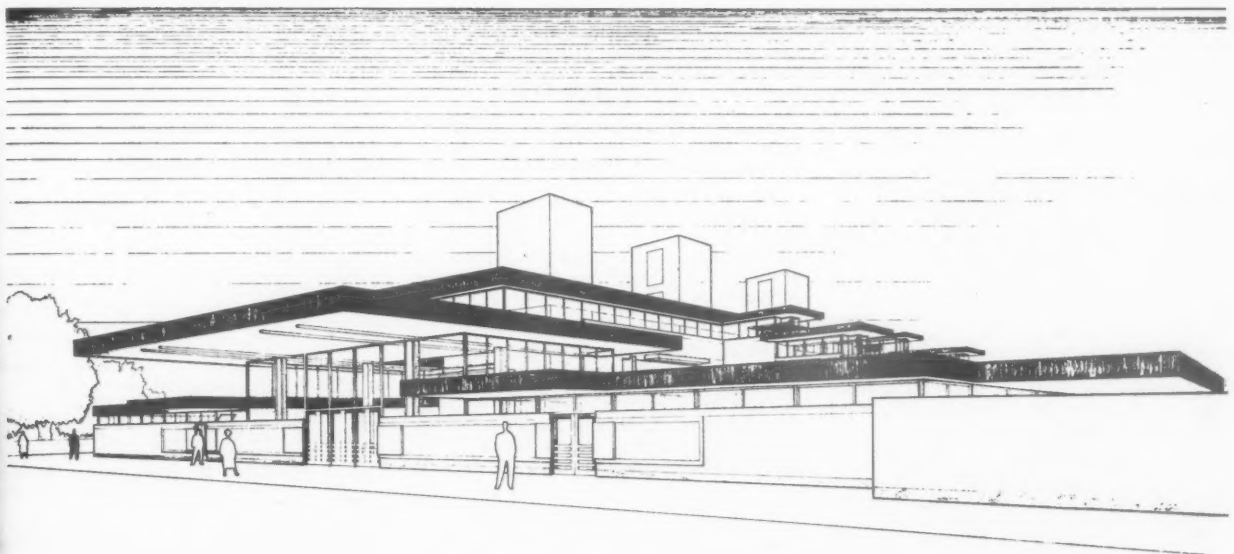
Not only do hand made tiles by Colthurst Symons offer the architect great scope for creative achievement, but their low maintenance cost will pay tribute to his practical sense of values
PANTILES No. 6: The natural rough texture gives an individual character

Size $13\frac{7}{8}" \times 9\frac{3}{4}"$, 1,000 tiles cover 70 square yards (approx)

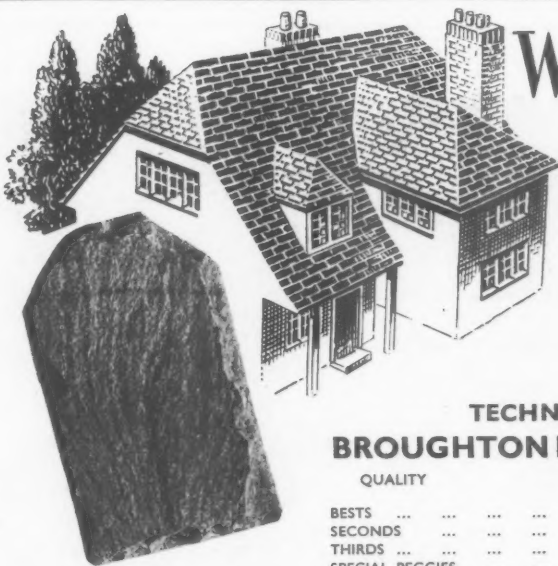


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NEW RAILWAY STATION FOR HARLOW



The new station for Harlow, Essex, where the town's population has grown to 50,000, will be completed by late 1960 and has been designed by the Eastern Region's Architect's Department (chief architect, H. H. Powell) under the direction of the Engineer's Department. The perspective above shows the front of the new building with the roof of the spacious, glass-walled passenger concourse extended to form a deep canopy over the approach pavement. Three lift towers for parcels lifts to serve the overbridge (and carry passengers incapable of walking up the stairs) rise above the station roof.



BROUGHTON MOOR LIGHT SEA GREEN AND OLIVE GREEN STONE remains sound for centuries and is eminently suitable for external and internal facings, Foundation Stones, Paving and Flooring, Steps, Cills, Shop Fronts, Surrounds, Pilasters, Fire-places and all architectural work.

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TECHNICAL INFORMATION CONCERNING BROUGHTON MOOR WESTMORLAND GREEN SLATES

QUALITY	LENGTH (Random widths)	COMPUTED COVER in sq. yds. per ton (3" lap)	APPROX. WEIGHT Per square (3" lap)—cwt.
BESTS	from 18" to 9"	24	9
SECONDS	from 18" to 9"	20	10½
THIRDS	from 18" to 12"	18	12
SPECIAL PEGGIES	from 15" to 7"	22	9½
SECOND PEGGIES	from 10" to 7"	20	11

Samples and prices gladly sent

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Alternatives: Seconds, Thirds, Special Peggies; Olive Green and Mixed Shades.

Ridging: "Bromoor" purpose-made of crushed and moulded slate from the same veins is recommended.

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Announcements

PROFESSIONAL

Messrs. Taylor & Young, of 195 Oxford Road, Manchester 13, have changed the style of their firm to Taylor, Young & Partners, the partners being W. Cecil Young, F.R.I.B.A., Haydn W. Smith, F.R.I.B.A., Arthur Pell, A.R.I.B.A., and Norman Crook, A.R.I.B.A.

E. Dudley Smith & Partners, Chartered Quantity Surveyors of Chelmsford and Colchester, have opened a new office at Imperial House, Dominion Street, Moorgate, E.C.2 (Moorgate 0391). A. Fry, F.R.S., Incorporated Quantity Surveyor, has joined the practice and is resident at the new office.

Louis Erdi, F.R.I.B.A., and Ronald J. Rabson, A.R.I.B.A., are now in partnership under the style Erdi & Rabson. Their offices are at 27, Knighttrider Street, E.C.4 (City 2639, 2630) and 86, Edgware Way, Edgware, Middlesex (Stonegrove 6686).

Edward Craven, A.R.I.B.A., M.T.P.I., has changed his Stamford address to 15, Barn Hill, Stamford (Stamford 3315). Manufacturers representatives should call at, and literature be sent to his office at 11A, St. Mary's Street, Lincoln (Lincoln 27671).

J. Stanley Beard, Bennett & Wilkins have taken into partnership H. C. Lightowler, A.R.I.B.A., and the practice will now be under the title of Beard, Bennett, Wilkins & Partners, at 101-3, Baker Street, W.1.

G. B. Smith, Dip. Arch. (Birm.), A.R.I.B.A., has resigned from the post of Architect, PWD, Ghana, and has been appointed Senior Architect, Ministry of Education, Kingston, Jamaica, where he will be pleased

to receive trade catalogues particularly related to school building

Miss Wendy Powell, A.I.L.A., has resigned her appointment as Assistant Landscape Architect to the Hemel Hempstead Development Corporation. She is travelling to America as a Fulbright Scholar, having been awarded a Foreign Scholarship to undertake post-graduate studies in Landscape Architecture at the University of Pennsylvania, Philadelphia 4, USA.

R. I. Dent, of 6, Caythorpe Crescent, Sherwood, Nottingham, would like manufacturers to send him their up-to-date literature and to add his name to their regular mailing lists; he does not wish any representatives to call.

Morrison & Partners, Chartered Architects, announce that their London office has moved to 70, Wimpole Street, W.1. The telephone number remains the same (Hunter 1628-9). The Derby and Sheffield practices will continue at their former addresses, St. Alkmunds House, Belper Road, Derby, and 14, Northumberland Road, Sheffield 10.

TRADE

Richard Hill Ltd. of Middlesbrough, has opened a West Indies Design Office at 39, Half Way Tree Road, Kingston, Jamaica, with A. J. Benghiat, B.Sc., as manager.

British Industrial Plastics Ltd. have moved to Haymarket House, 28, Haymarket, London, S.W.1. The London Sales Offices of BIP Chemicals Ltd. and the Streetly Manufacturing Co. Ltd. are also at this address.

Mitchell, Ashworth, Stansfield & Co. Ltd. and A. V. Humphries Ltd. have formed a new company, Humasco Ltd., for the promotion and marketing of new forms of floorcovering. Humasco Ltd. will operate from 23, Old Bailey, London, E.C.4 (City 1056-8).

G. B. Perry has been appointed managing director of Axia Fans Ltd. and a director of Vent-Axia Ltd. He will retain his seat on the board of Thermotank Ltd.

Goodenough Pumps Ltd. announce that J. M. Escott has been appointed Chief Designer.

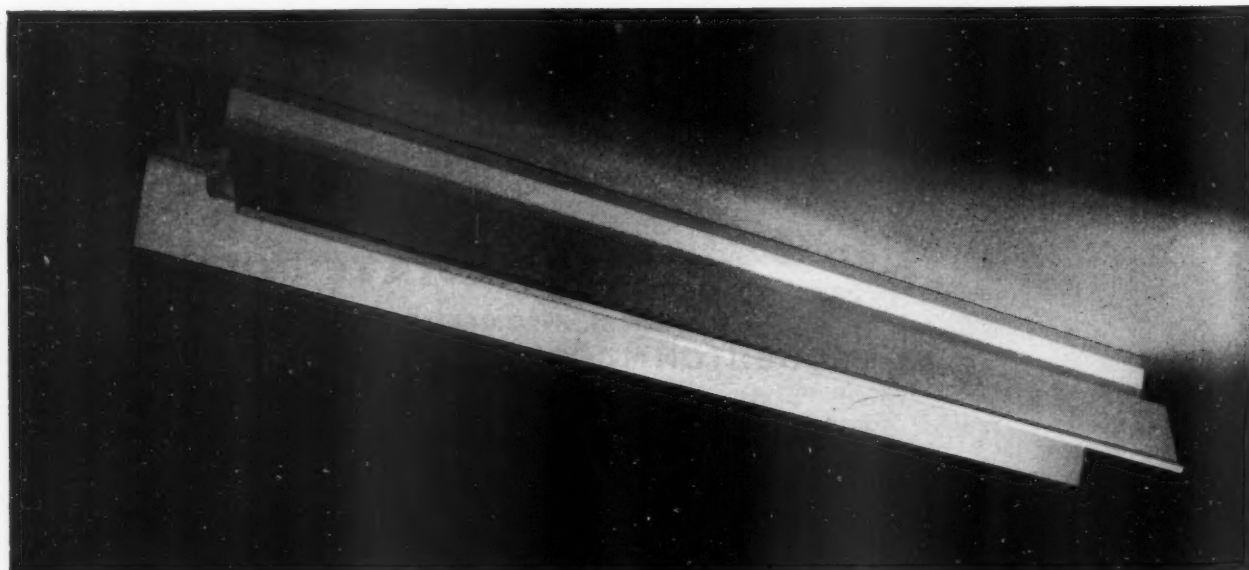
The English Electric Co. Ltd. announce that their Bristol Branch Office has moved to Equity & Law Building, 36-38 Baldwin Street, Bristol 1. The telephone number remains the same (Bristol 27304). The Domestic Appliance Service Depot remains at 155, Whiteladies Road, Bristol 8.

Guildcrete Ltd. and Cedar Homes Ltd., of Artington, Guildford, Surrey, announce that G. W. Glassborow has been promoted to Deputy Managing Director, though he will continue to act as Sales Director for the present.

Concrete Ltd. have opened a Regional Office at 18A, Park Street, Bristol (Bristol 28724).

The Glass Manufacturers' Federation announces that J. F. Small has been appointed Assistant to the Director, Dennis Rider, and J. F. Hobbs has been appointed assistant Secretary.

Leslie & Co. Ltd. announce that G. P. White and H. B. Hunter, Chief Estimator and Chief Planning Manager respectively, have been appointed directors of the company.

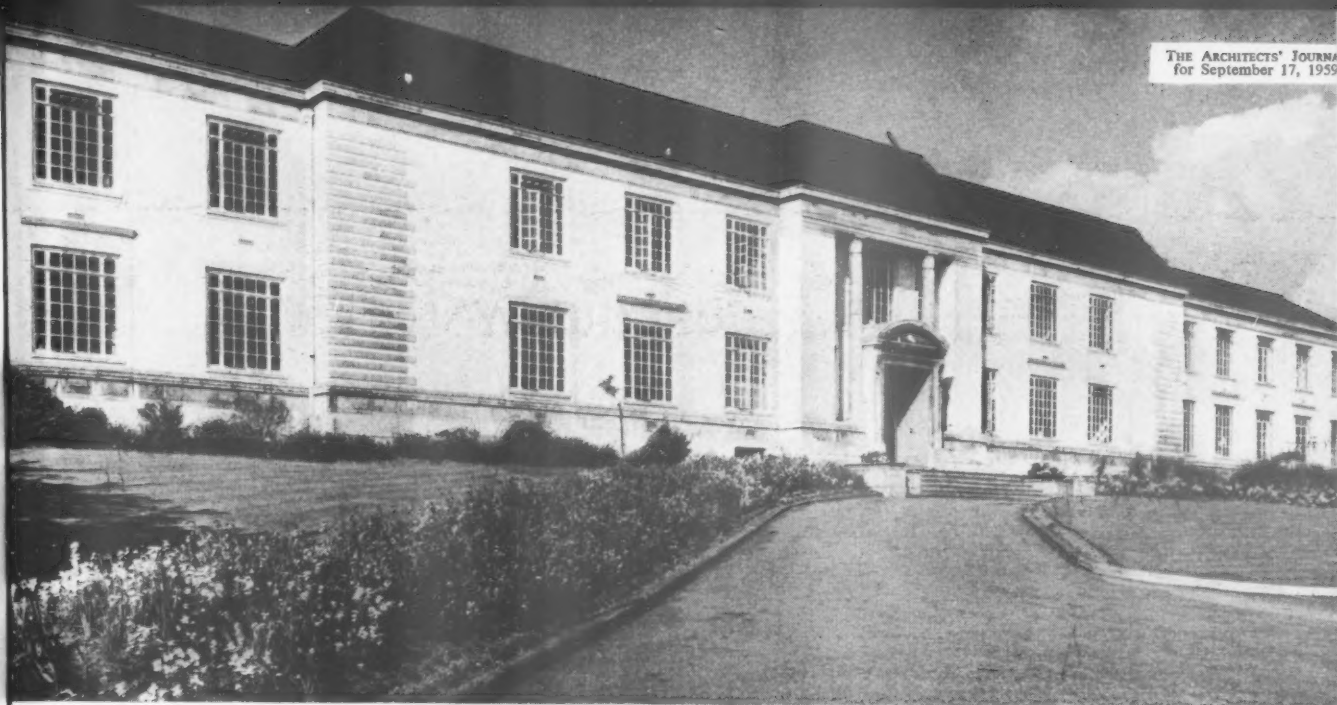


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is when A BUILDING
stands behind it
And KEEPS WARM and
DRY and looks pretty and...



Flats for the Borough of Maidstone
Borough Surveyor,
S. F. Dixon, M.I. MUN.E., L.R.I.B.A.
Chief Assistant Architect,
R. E. Carlick, A.R.I.B.A.

He might have added that most people
these days call it WALLSPAN—the
most widely used curtain wall system
in the country.
He could have said too that this contract
shows Wallspan looking as good on a
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Maidstone to rehouse families from
clearance areas in the town.

They are arranged in 4-storey blocks of 12 and 24 flats, built on a basic 'Y' shaped plan grouped round a hexagonal central unit, which contains the entrances, stairs and services. The 24-flat blocks consist of two normal blocks linked together. Sections of Wallspan, each 2 storeys high, clad the side of the blocks. Each flat has its own private balcony cantilevered from the main floor slabs between the Wallspan mullions, which are placed at 6 foot centres. In order to preserve the continuity of the mullions, the balcony floors are formed in a T-shape to give them extra external width.



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P.3

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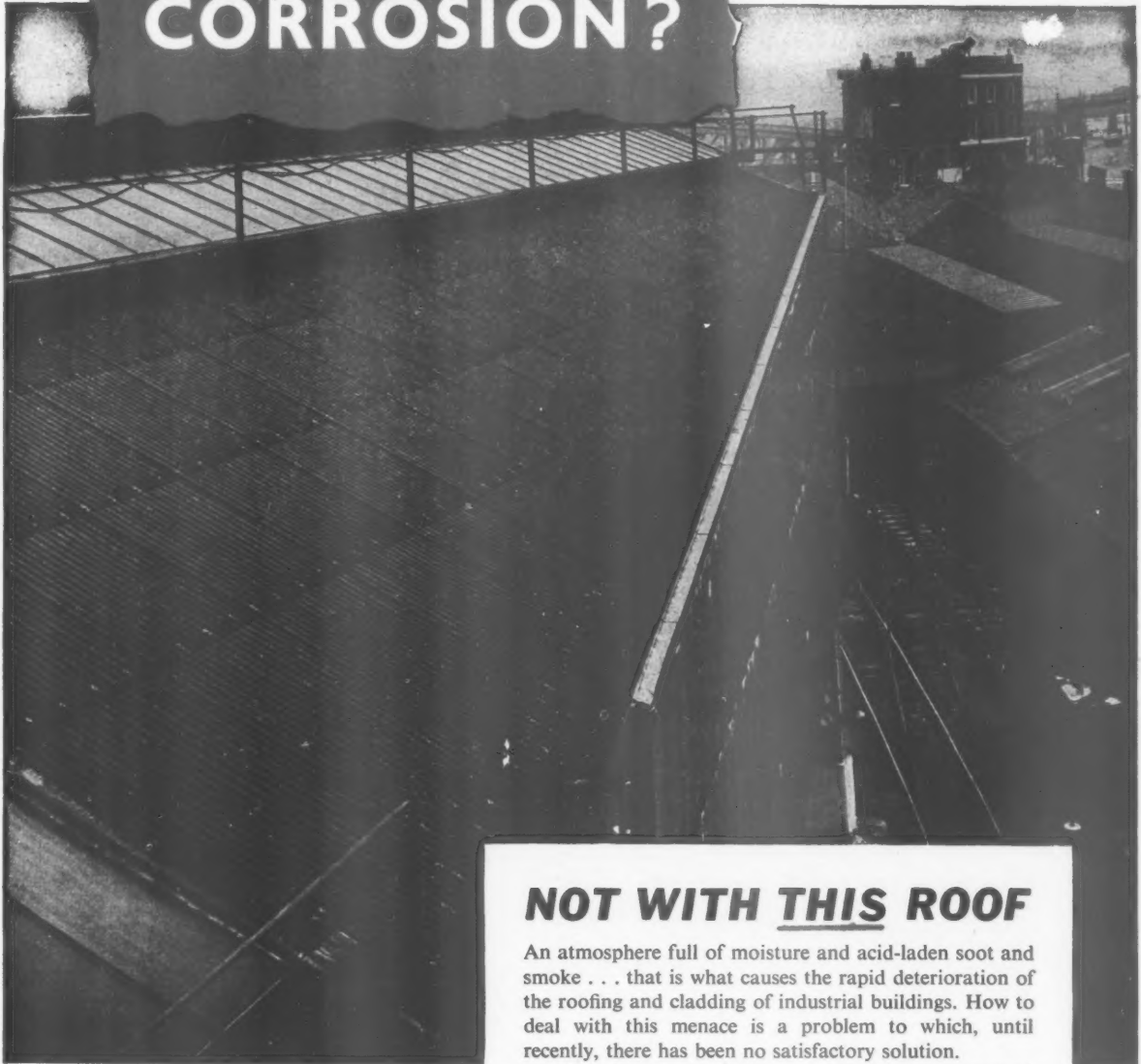
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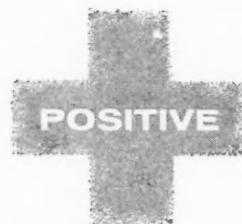
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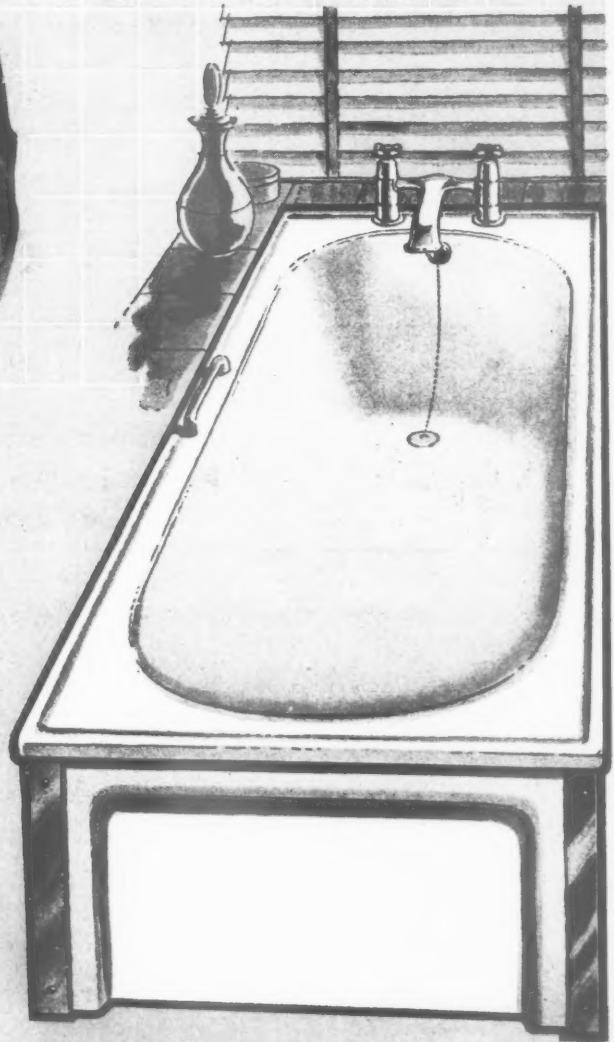
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FIXING CONTRACTORS	Messrs. D & A McKnight Ltd
METHOD OF FIXING	Nailed
AREA COVERED	203 square yards
NUMBER OF PANELS	457
COLOUR OF PANELS	White
DATE COMPLETED	July 1958

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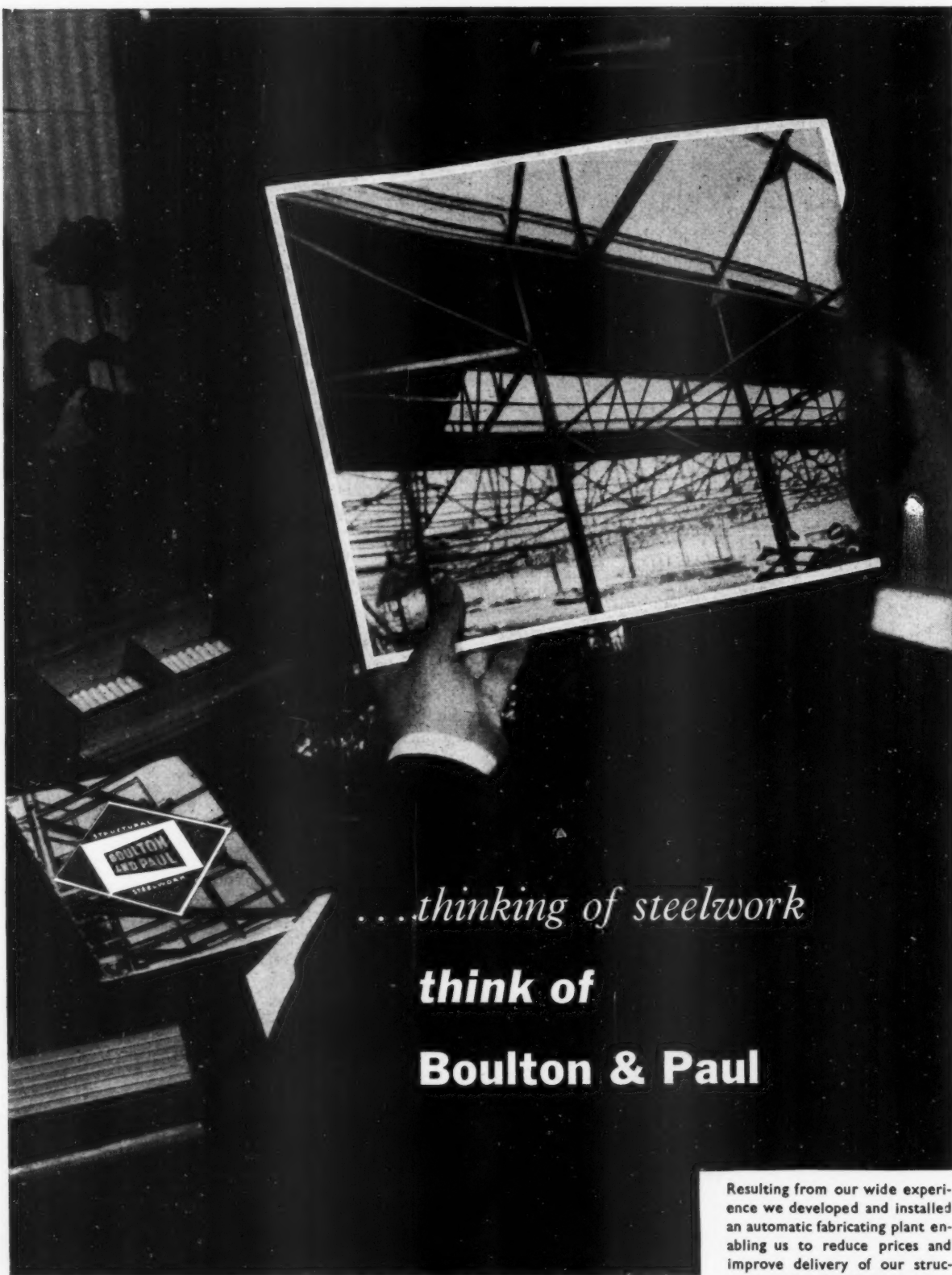
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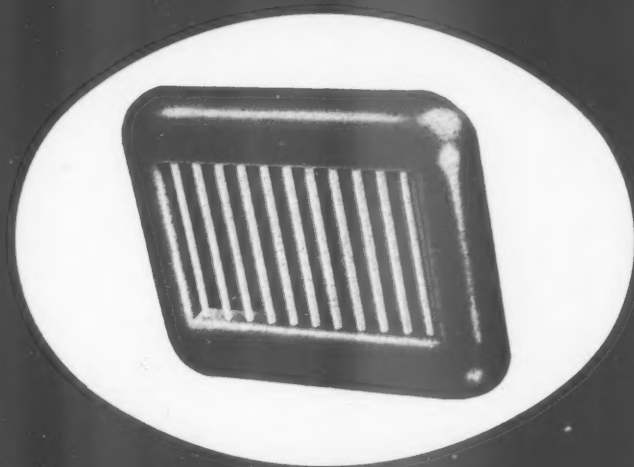
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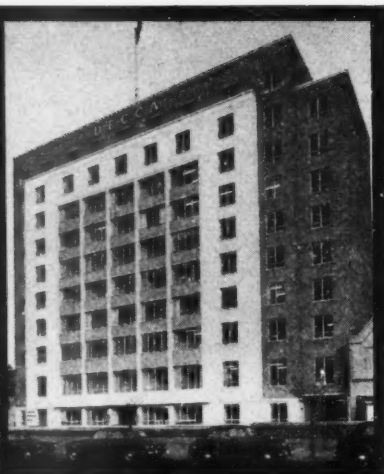
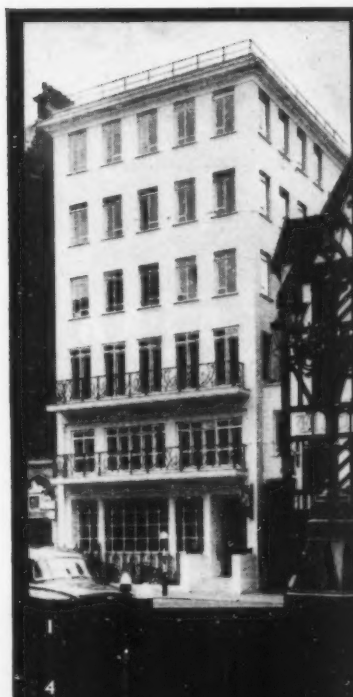
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2 Saxone, Leicester
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Michael H. Egan, F.R.I.B.A.

3 Decca House, Albert Embankment,
London, S.E.11
Architects: Grace & Farmer, F.R.I.B.A.

4 Tattersalls, Knightsbridge, London, S.W.1.
Architects: Stone, Toms & Partners, F.R.I.B.A.

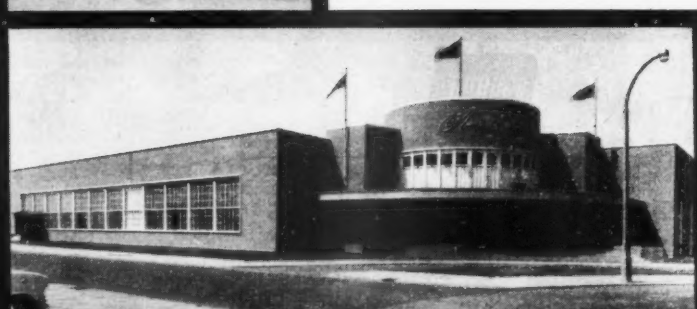
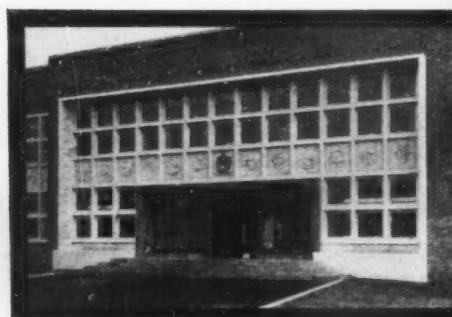
5 72 Dean Street, London, W.1.
Architect: T. P. H. & E. Braddock, F.A.R.I.B.A.

6 Austin Motors Co. Ltd.,
Exhibition Hall, Longbridge
Architects: Harry W. Weedon, F.R.I.B.A. & Partner

7 Swansea University, Natural Sciences Building
Architects:
Sir Percy Thomas & Son, F.R.I.B.A., A.R.I.B.A.

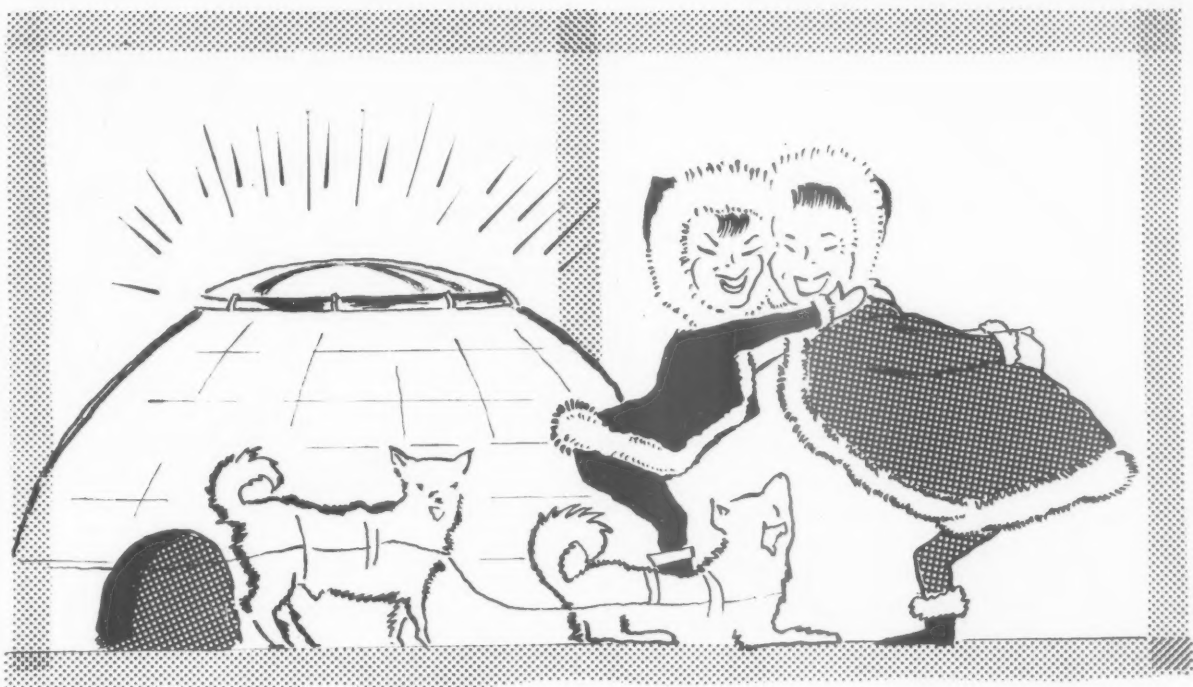
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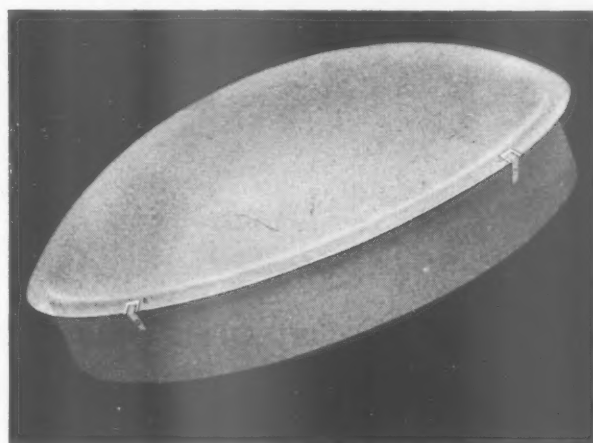
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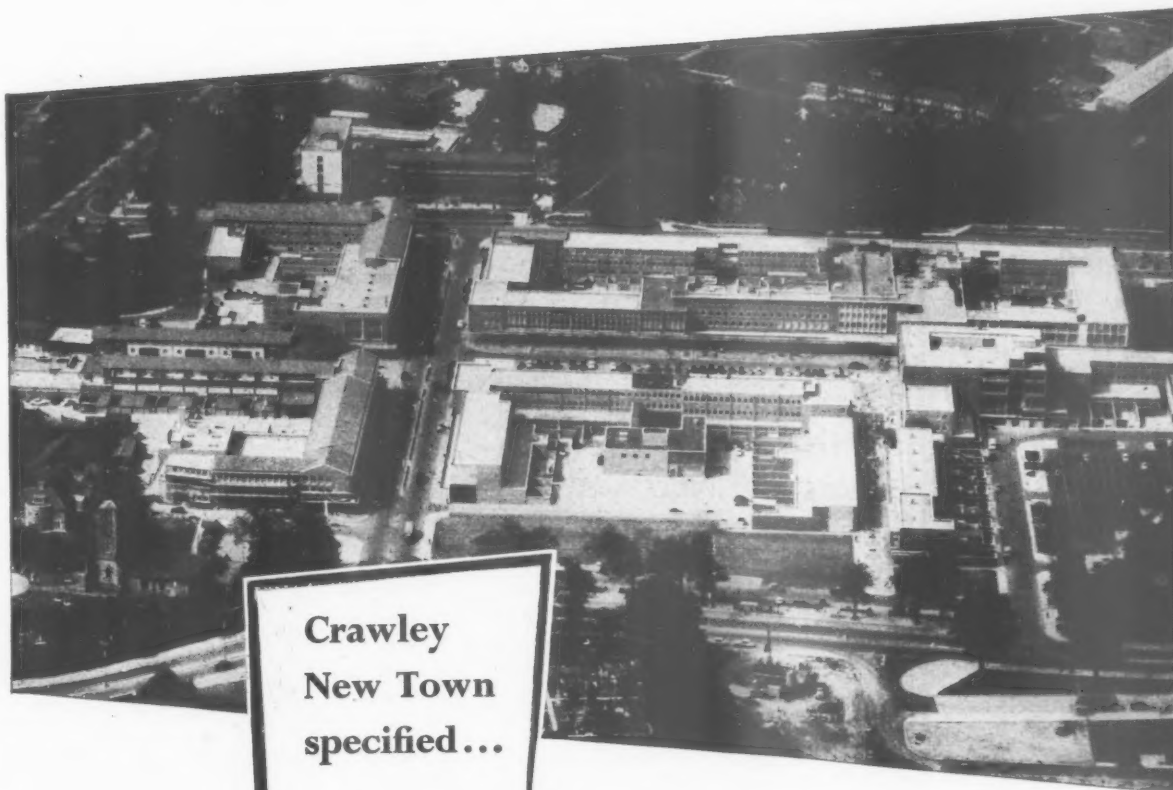
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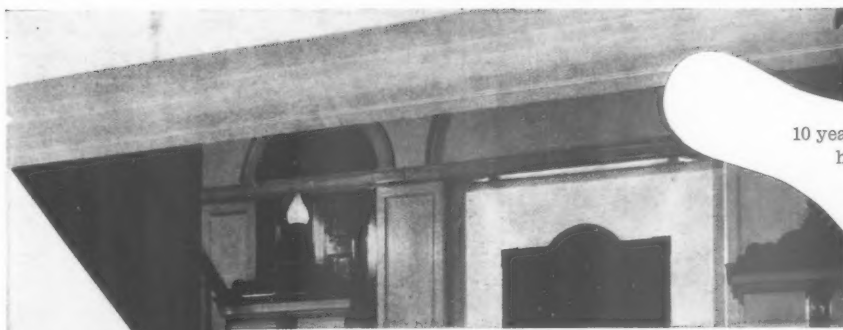
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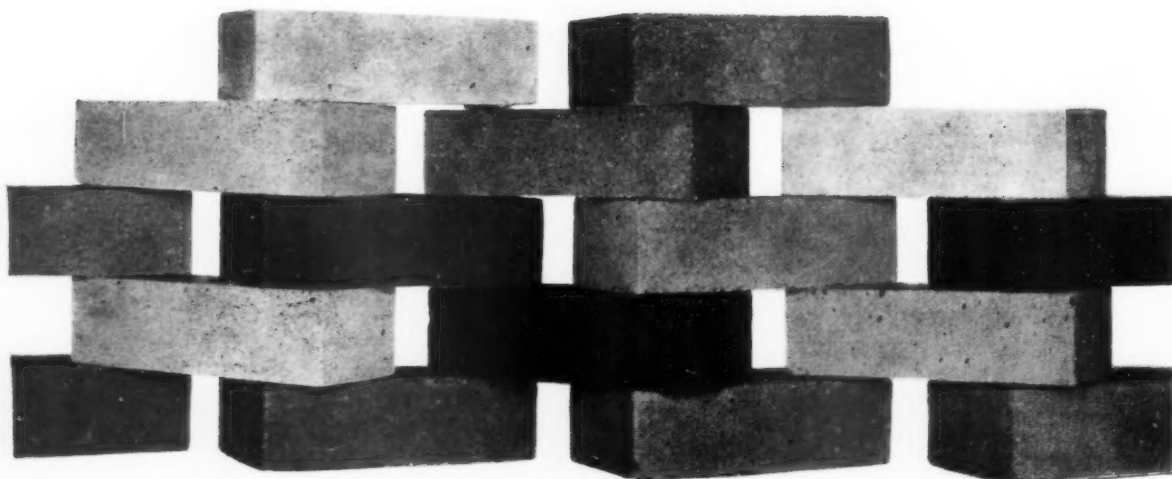


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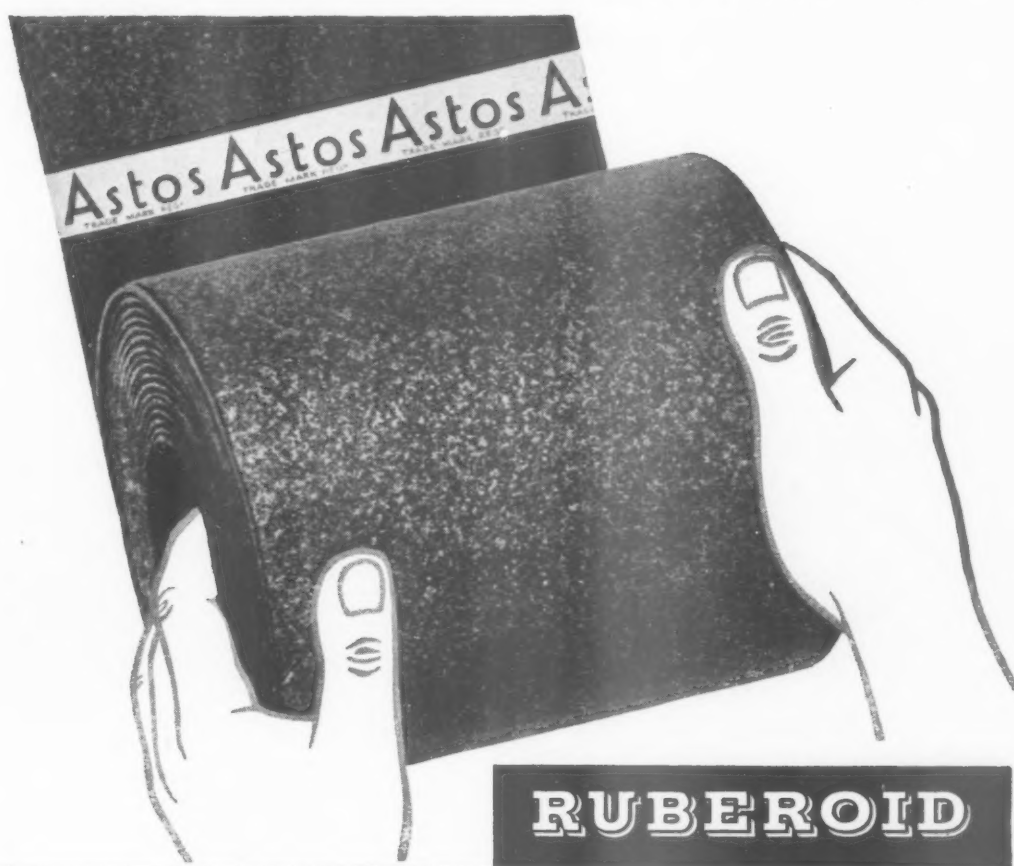


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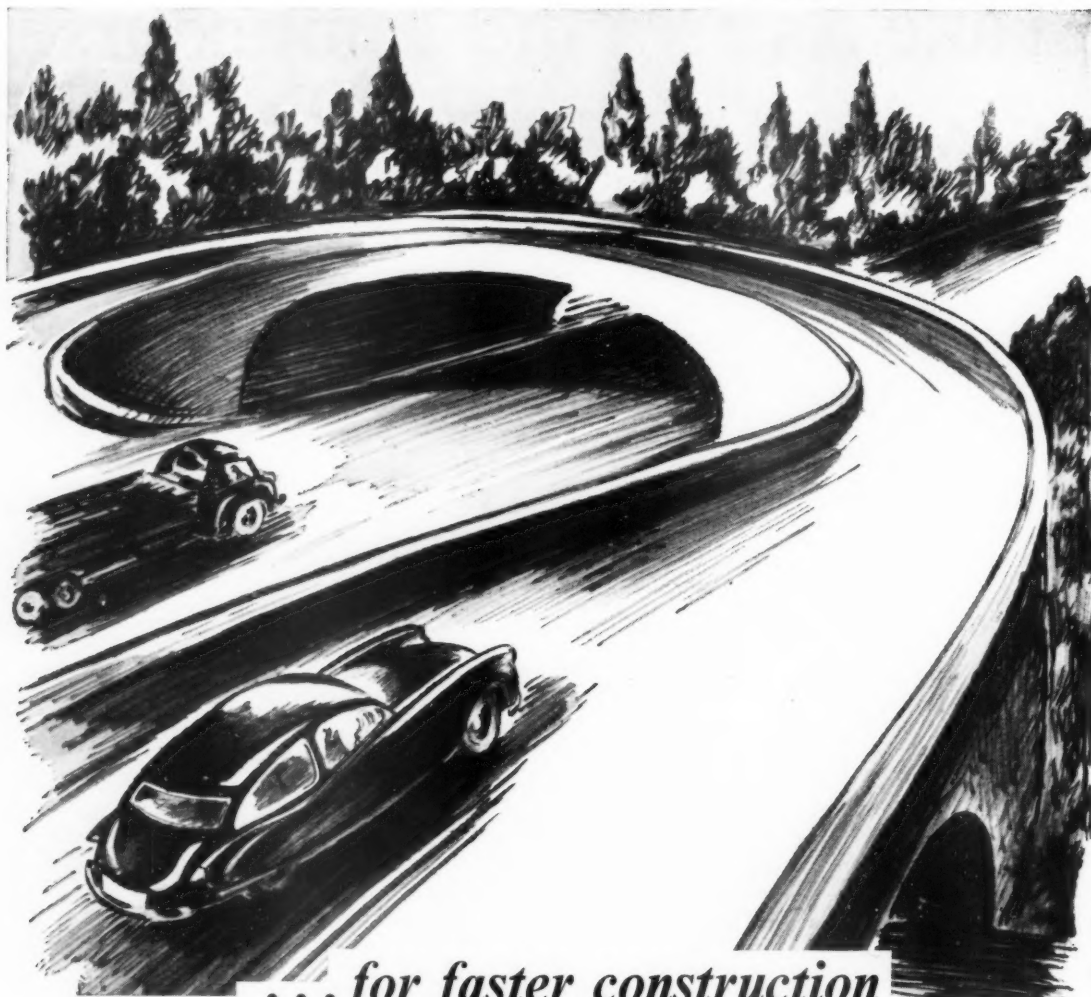
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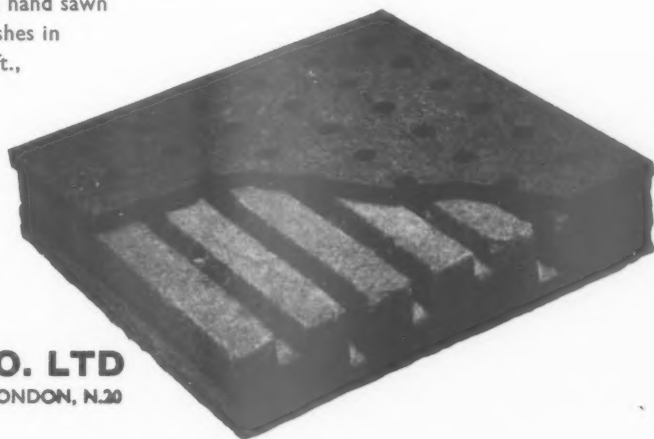
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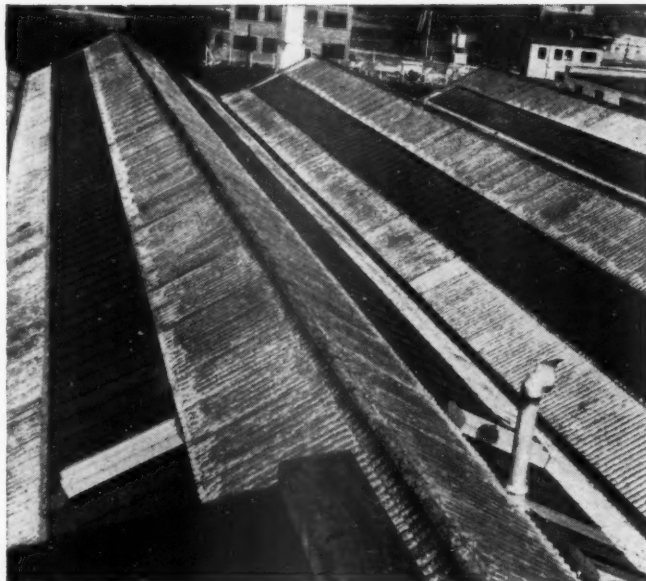
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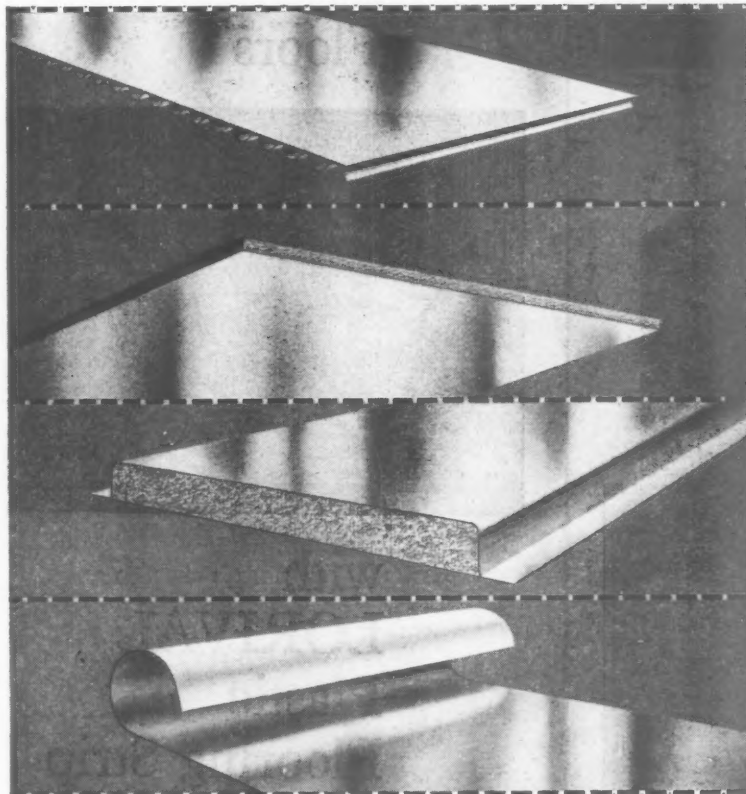
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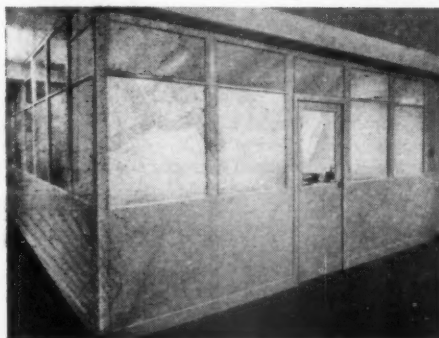


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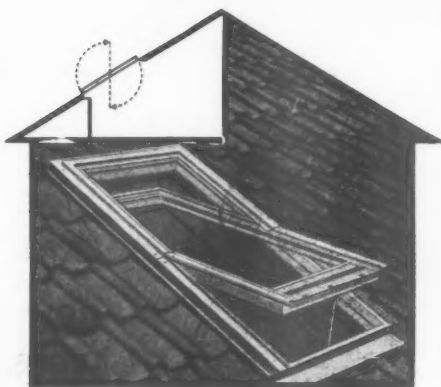


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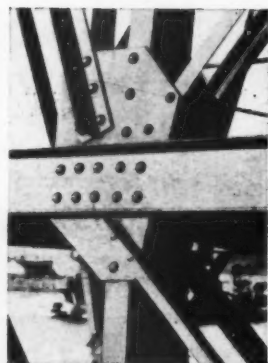
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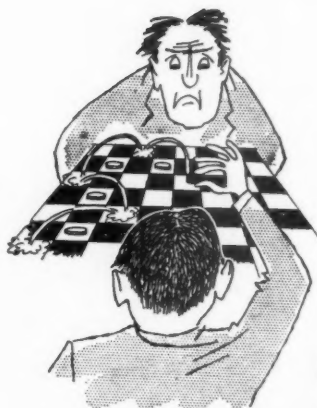
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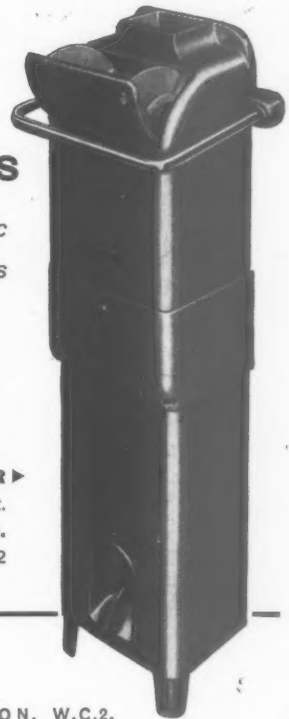
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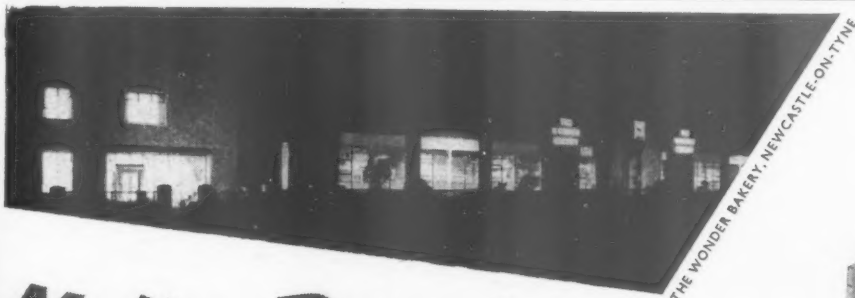
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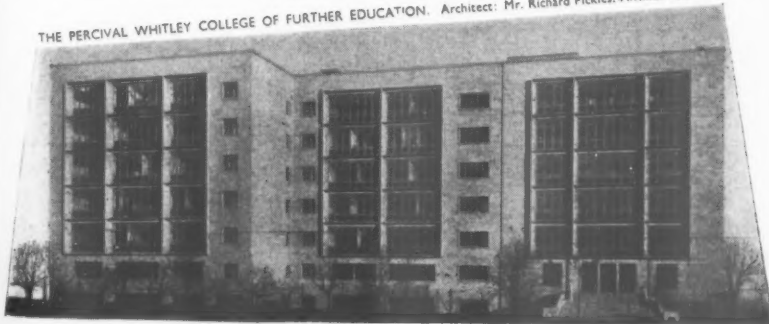


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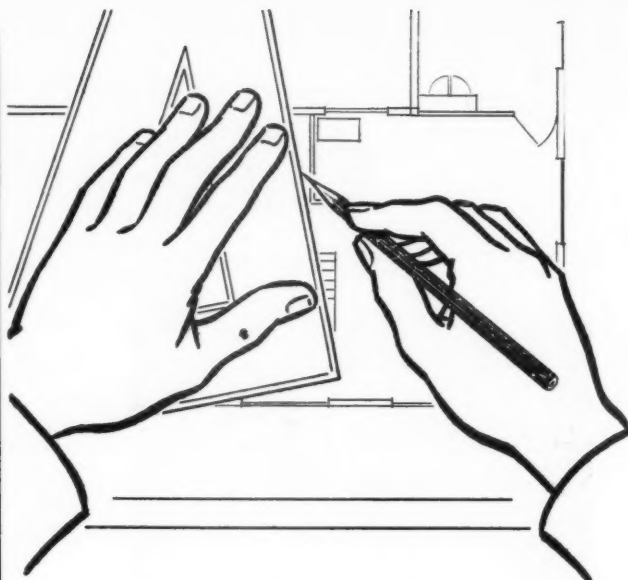
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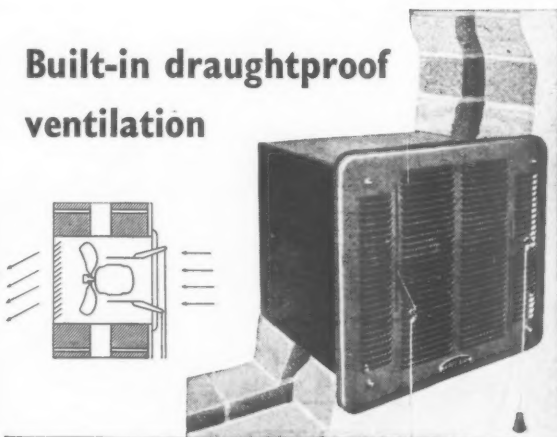
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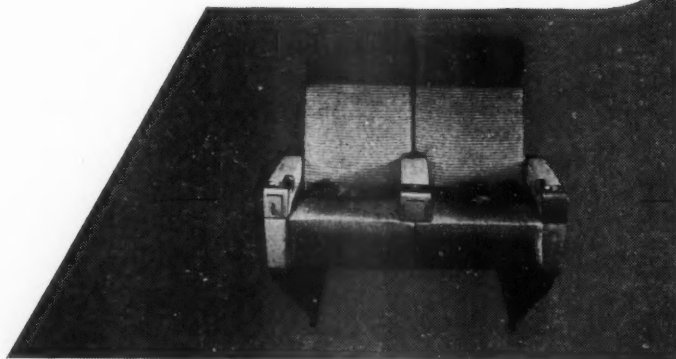
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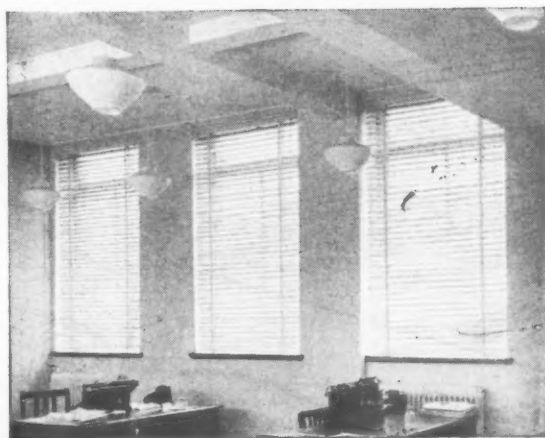
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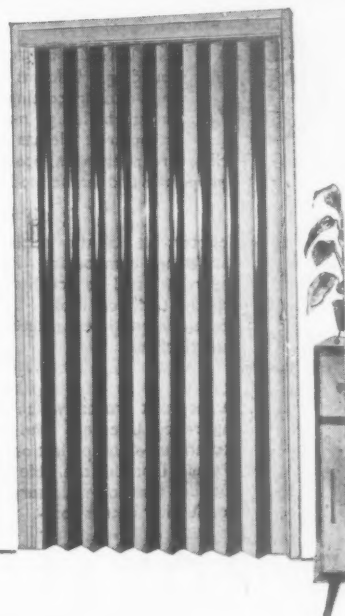
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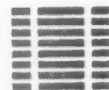
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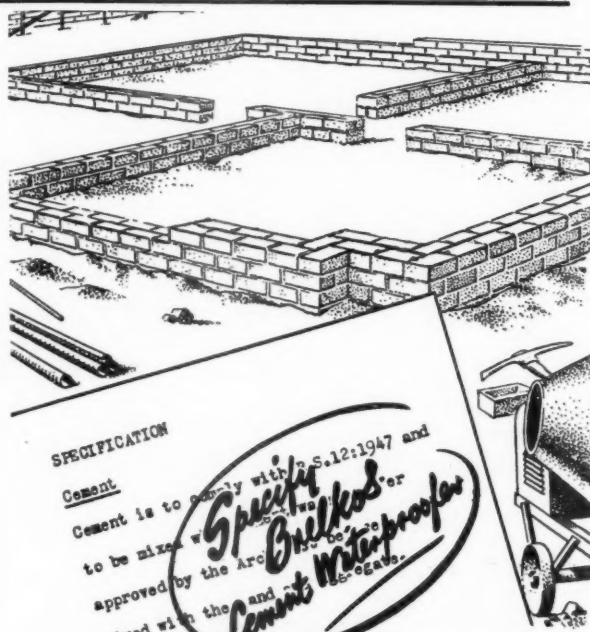
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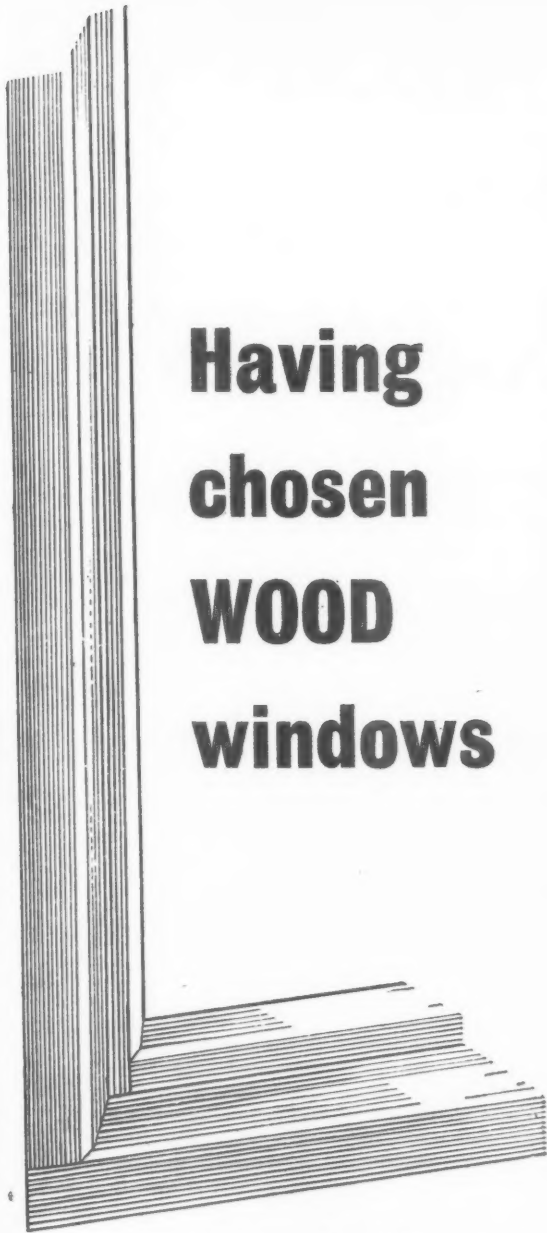
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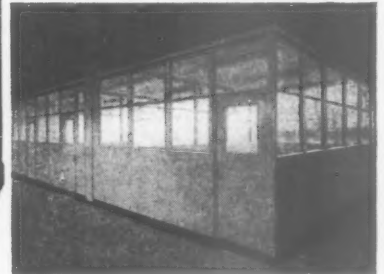
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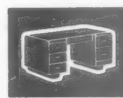


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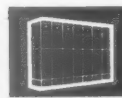
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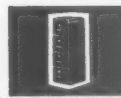
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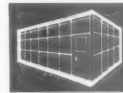
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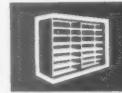
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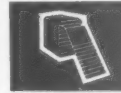
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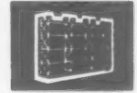
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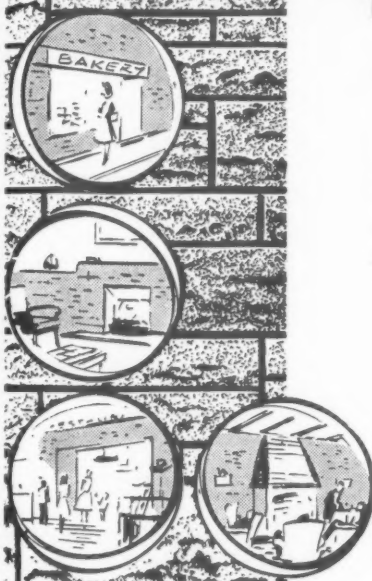
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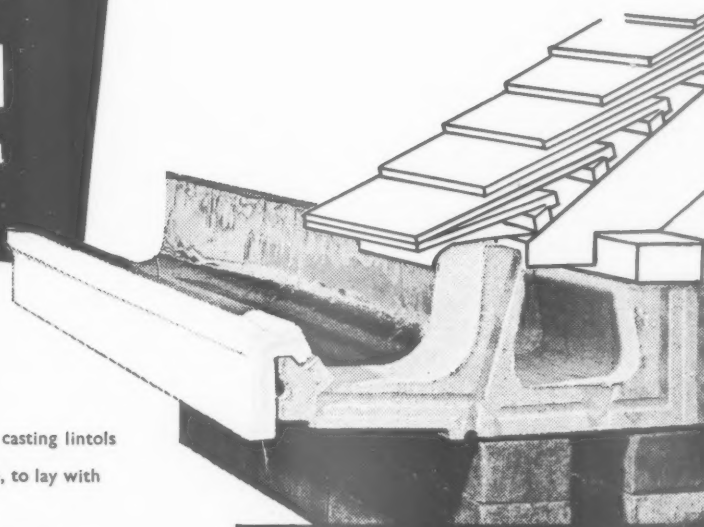
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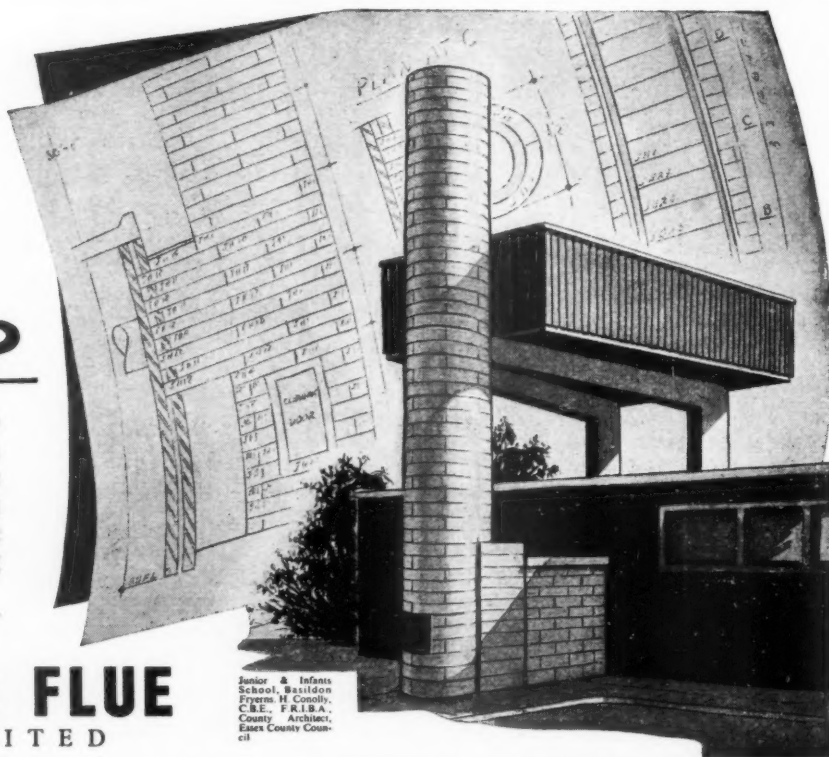
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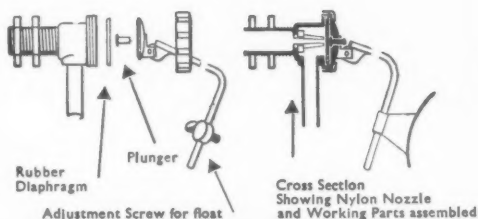
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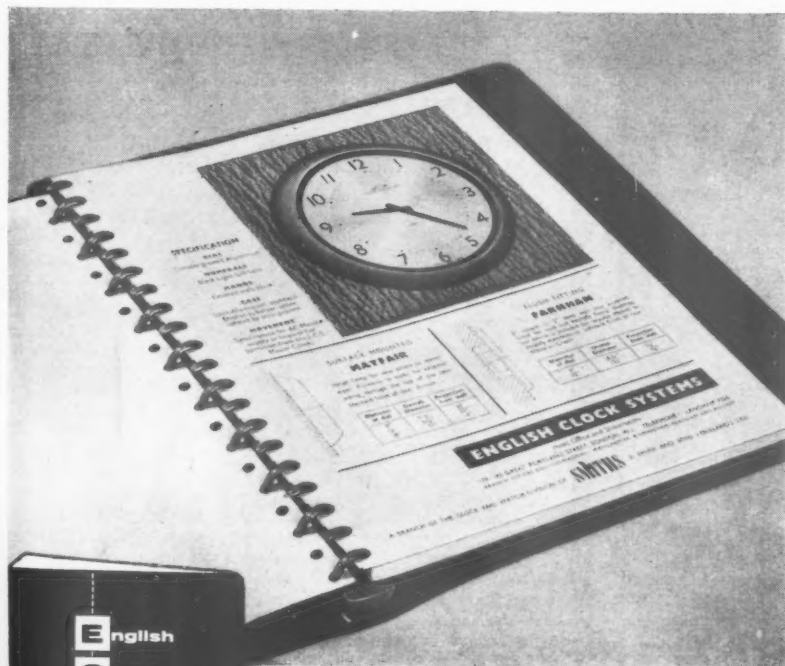
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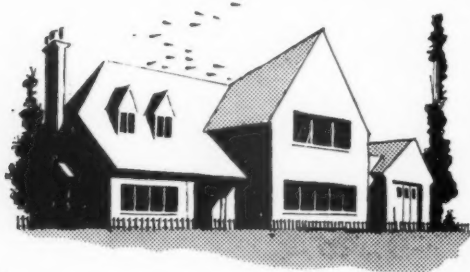
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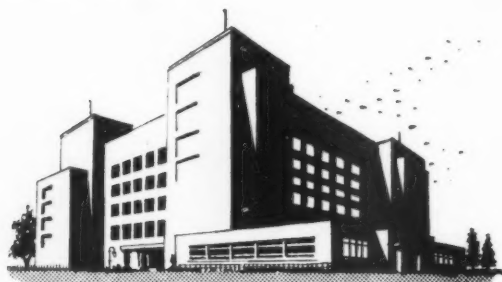
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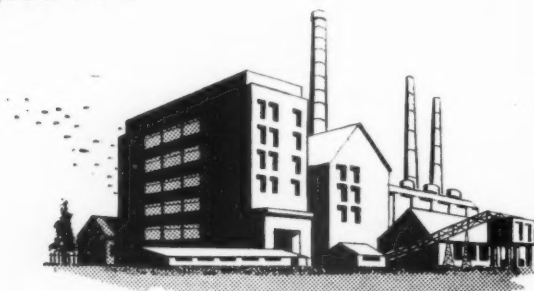
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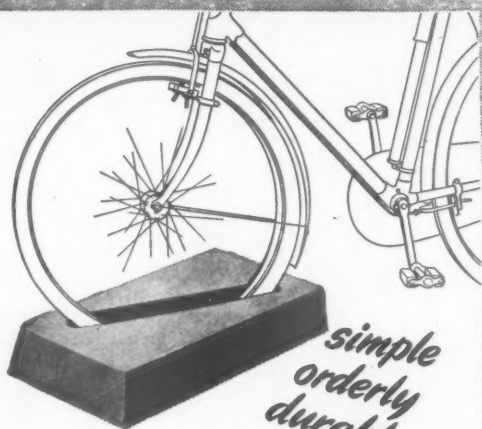


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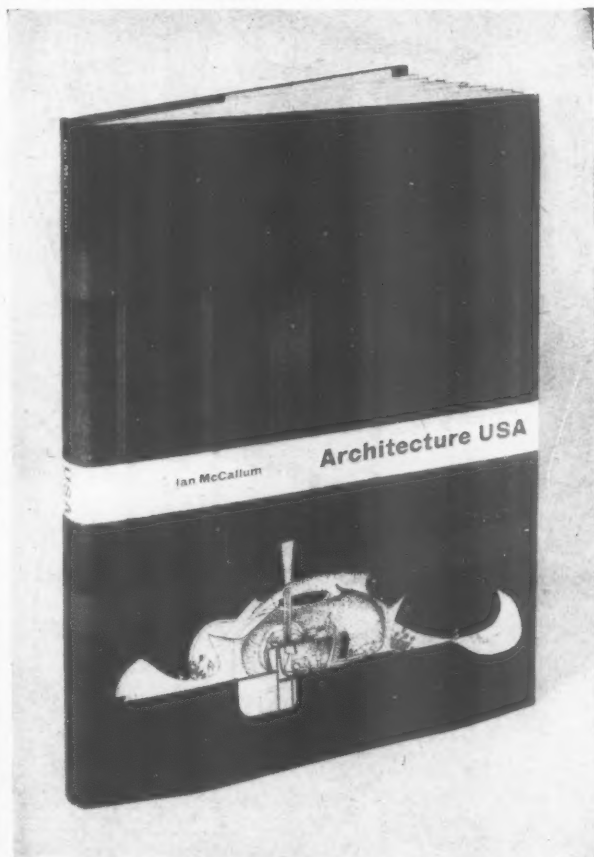
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Architecture USA by Ian McCallum

SINCE 1950 AMERICA, a land of opportunity and a land of achievement, has attained a dominant place in world architecture. But it has remained largely unknown territory for want of a book that sets out to map the whole field.



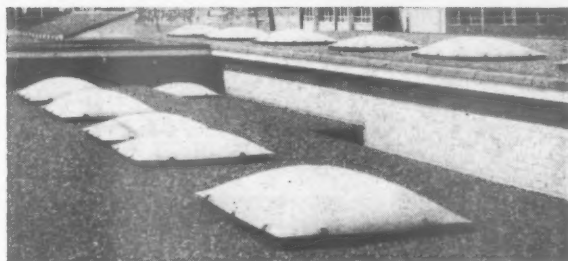
Architecture USA remedies this omission by surveying the field in breadth and depth, studying not only the major architects in America today, but also their antecedents—the great pioneers and the social and historical developments that have carried their ideas to fruition. Here, in close enough juxtaposition to make comparisons possible and influences clear, are H. H. Richardson and Louis Sullivan and Frank Lloyd Wright, the pioneers of the Middle West; Greene and Greene and William Maybeck, pioneers of the West Coast; Raymond Schindler, Richard Neutra, Gropius, Breuer, Mies van der Rohe, the Europeans who have made an heroic contribution to US architecture; Edward Stone, Philip Johnson, Charles Eames, Buckminster Fuller, Paul Rudolph and others who have helped to make modern American Architecture both modern and American.

In Architecture USA, Ian McCallum has combined first-hand experience with extensive research to draw a group portrait of the most stimulating assembly of architectural minds in the world today.

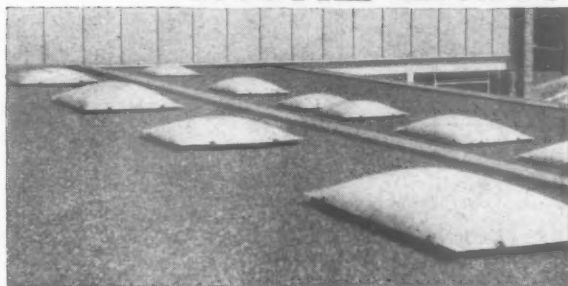
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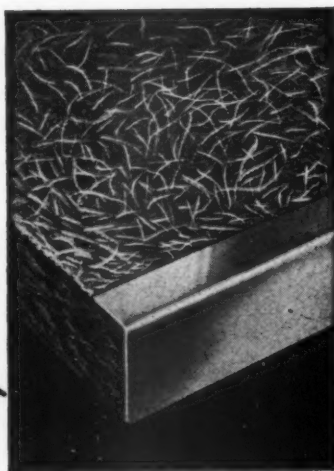
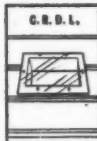
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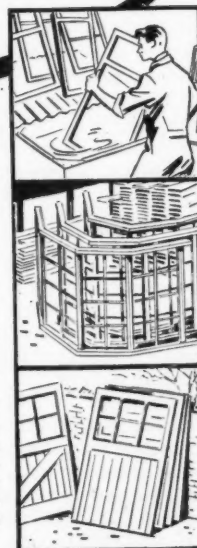
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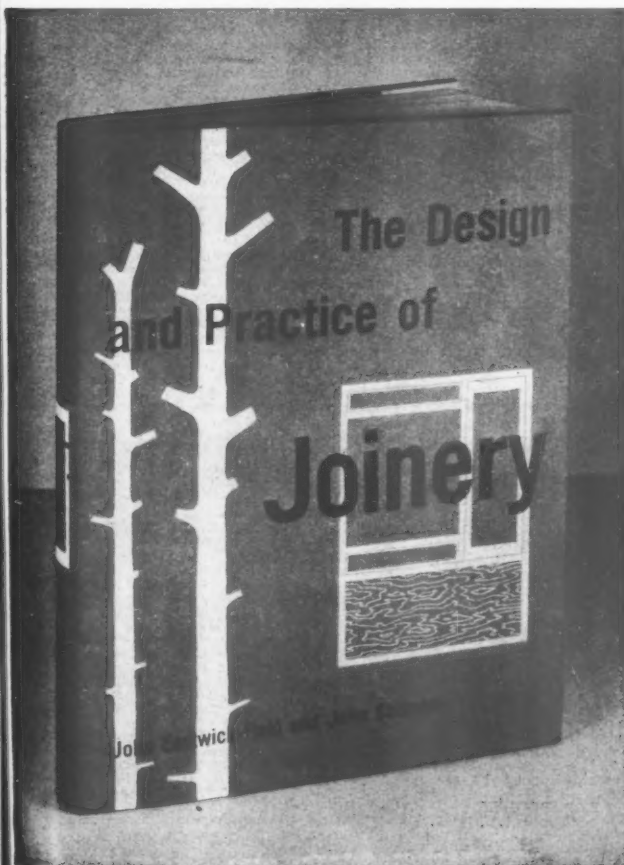
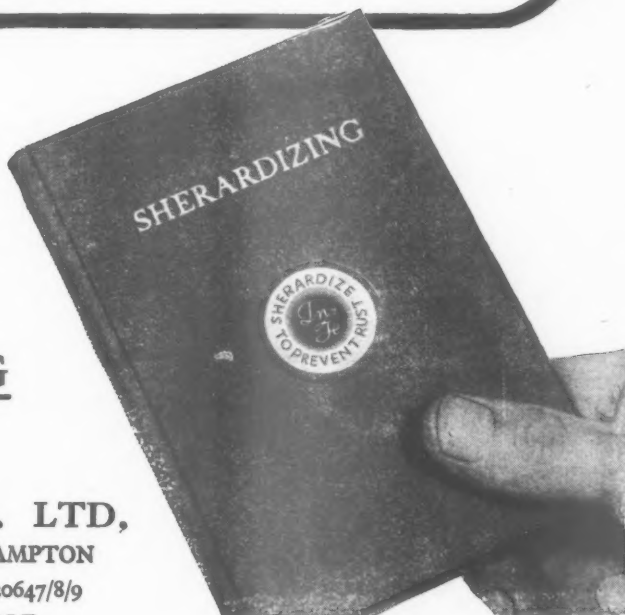


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The Design and Practice of Joinery

by John Eastwick-Field, B.Arch.(HONS), A.R.I.B.A. and John Stillman, DIPL.LONDON, A.R.I.B.A.

Foreword by Robert H. Matthew, C.B.E., M.A., F.R.I.B.A.

THIS, THE ONLY AUTHORITATIVE, UP-TO-DATE BOOK about present-day joinery practice, is published at the recommendation of the Text and Reference Books Committee of the Royal Institute of British Architects and is intended primarily for architects, assistants and students of architecture. But, because its scope is broad and because it is concerned with the basic principles of design and practice, it will also be of great interest and value to the members of kindred professions, especially quantity surveyors, and to all who are engaged in the handling and conversion of timber, including joinery manufacturers, joiners, cabinet makers, carpenters, shop fitters and other woodworkers.

The text includes chapters on the timber yard; moisture movement in timber; an analysis of construction; the design and machining of sections; and of joints; specification and practice. Among its useful appendixes are a selection of timbers suitable for joinery, set out in tabular form, a complete list of British Standard Specifications and Codes of Practice applicable to joinery, and a general bibliography. It is comprehensively illustrated: there are nearly 90 photographs and over 200 specially drawn line illustrations—more than 80 in the chapter on joints. And there is a good index.

Size 9½" by 7½". 224 pages, over 290 illustrations in halftone and line, including 200 line drawings specially drawn by Robert Maguire. Price 42s. net, postage 1s. 9d.

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Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.

Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

AIR-MAIL SERVICE available on request. In response to requests from a number of Overseas subscribers for air-mail delivery of Public and Official Appointment details and Other Appointments Vacant, we have been pleased to arrange that cuttings of all such classified advertisements appearing in the A.J., shall be despatched by air-mail on Wednesday of each week (one day prior to A.J. publication date). The cost of this special service to Overseas subscribers will be 5s. for four weeks (1s. 3d. for each additional week) and payment should be sent by subscribers wishing to take advantage of this service. The charge we are making represents only the actual cost of the postage involved.

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4812

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE

OFFICE OF THE COUNTY ARCHITECT
The Council require **SENIOR ARCHITECTS** in salary grades A.P.T. IV (£1,065-£1,320) and Special Grade (£785-£1,070) for their extensive and interesting building programme which includes schools, colleges, old people's and children's homes, clinics, ambulance, fire and police stations, and other public buildings. Architects appointed will be employed at the Central Office in Wakefield solely upon capital works and will be expected to handle building projects from sketch plans to completion.

Applications are also invited for the undermentioned posts at the Central Office:—

(a) **JUNIOR ARCHITECTURAL ASSISTANTS**, Grade A.P.T. II, £765-£880.

(b) **JUNIOR ARCHITECTURAL ASSISTANTS**, Grade A.P.T. I, £610-£765.

Applications to be submitted on forms to be obtained from and returned to the undersigned.

A. W. GLOVER, F.R.I.B.A.,
County Architect.

"Bishopgarth,"
Westfield Road,
Wakefield.

5205

LONDON COUNTY COUNCIL ARCHITECT'S DEPARTMENT QUANTITIES DIVISION

Applications are invited, particularly from newly qualified Surveyors, to fill vacancies affording an opportunity for interesting and rewarding careers in a variety of branches of quantity surveying. The positions include the following types of work:

Junior taking-off/working-up.
Approximate estimating and assisting in cost planning.

Pricing bills of quantities for estimates comparable with tenders.

Preparation and settlement of final accounts for major building contracts including interim valuations.

Measurement of minor works, schedule accounts, etc.

General technical duties and working-up.

Salaries up to £1,135 p.a.

Application forms and particulars from Hubert Bennett, F.R.I.B.A., Architect to the Council, County Hall, S.E.1, quoting ref. AR/EK/75/59. (1745)

5401

COUNTY BOROUGH OF GREAT YARMOUTH SCHOOLS ARCHITECT'S DEPARTMENT

APPOINTMENT OF JUNIOR ASSISTANT

Applications are invited to fill the vacancy for an Architectural Assistant within A.P.T. Grade II (£765-£880).

Previous experience in Local Government not essential.

Applications, stating age, qualifications, experience, details of past and present employment, together with the names of two referees, should reach the Schools Architect, 22, Euston Road, Great Yarmouth, by 24th September, 1959.

D. G. FARROW
Chief Education Officer.

22, Euston Road,
Great Yarmouth.

5524

LONDON COUNTY COUNCIL
ARCHITECTS (up to £1,135) required for maintenance and restoration work on historic buildings owned by Council and also for making measured drawings for Survey of London. Candidates should have knowledge of historical architectural detail and special interest in the work. Experience in maintenance of buildings an advantage for the maintenance posts. Starting salaries according to qualifications and experience.

Particulars and application form from Hubert Bennett, F.R.I.B.A., Architect to Council, EK/79/59, County Hall, S.E.1. (1904).

5552

BUILDING SURVEYORS
Architect's Department, London County Council, requires Building Surveyors to deal with surveys of buildings in areas of high fire risk and applications from factories for certificates in respect of fire safety. Grade III (Qualified Surveyors) to lead small teams—up to £1,135.

SURVEYING ASSISTANTS up to £995.

Application forms, returnable by 28 September, and particulars from Hubert Bennett, F.R.I.B.A., Architect to Council, EK/78/59, County Hall, S.E.1. (1880).

5553

BUILDING SURVEYORS
Architect's Department, London County Council, has vacancies in Building Regulation Division and District Surveyors' Service for work in connection with applications under the London Building Acts and Byelaws. District Surveyors' offices are in the Metropolitan Boroughs and work involves negotiations with developers and supervision of works in progress.

Up to £1,135 commencing according to qualifications and experience. Application form and particulars from Hubert Bennett, F.R.I.B.A., Architect to Council, EK/81/59, County Hall, S.E.1. (1906).

5554

THE ROYAL INFIRMARY OF EDINBURGH AND ASSOCIATED HOSPITALS

ARCHITECTURAL ASSISTANT

Applications are invited from experienced candidates, preferably holding the Intermediate Certificate of the R.I.B.A. Starting salary £525-£695 per annum, according to age and experience. Apply to Personnel Officer, Royal Infirmary, Lauriston Place, Edinburgh. 3.

5596

ZETLAND COUNTY COUNCIL

VACANCY for an ASSISTANT ARCHITECT.

Interesting works, including new schools, new public buildings, housing. New 4-apartment traditional house available finely situated at Sealloway. Salary scale £795-£1,075 per annum, placing according to qualifications, etc. Applications, with full details and two recent testimonials to Subscriber by 30th September 1959.

JOHN N. SINCLAIR,
County Clerk.

County Buildings,
LERWICK.

1st September, 1959. 5585

COUNTY BOROUGH OF DARLINGTON BOROUGH SURVEYOR & TOWN PLANNING

OFFICE

APPOINTMENT OF TOWN PLANNING ASSISTANT

Applications are invited for the appointment of a **TOWN PLANNING ASSISTANT** at a salary within the special scale for qualified assistants £785 per annum rising by increments of £40 per annum to £1,070 per annum.

Applicants must possess the appropriate qualifications and the commencing salary will be fixed having regard to the applicant's qualifications and experience.

The works to be undertaken include Development control and the preparation of schemes for areas of comprehensive development but it is not essential that candidates should have had previous municipal experience.

Housing accommodation can be made available for married men if required.

Applications endorsed "Town Planning Assistant" and giving the names and addresses of two referees should be delivered to me not later than Friday the 25th September, 1959.

C. N. S. NICHOLSON,
Town Clerk.

11 Houndgate,
Darlington.

5545

BIRMINGHAM REGIONAL HOSPITAL BOARD

SURVEYING ASSISTANT (BUILDING):

£545-£765. To assist in survey of existing hospital buildings and preparation of record plans. Intermediate R.I.C.S. (Buildings Division) essential. Must be neat draughtsman with experience in measurement and plotting of surveys to all scales. Superannuable. Five-day week. Written applications, naming two referees, to Secretary, R.H.B. 10, Augustus Road, Birmingham, 15, by 28th September.

5573

BUCKS COUNTY COUNCIL

Applications are invited for the appointment of an **ASSISTANT ARCHITECT** in the County Architect's Department on the Architects' Special Scale, £785-£1,070 p.a.

The appointment is superannuable and subject to medical examination.

A weekly allowance of 25s. and return fare home once every two months may be paid for six months to newly appointed married officers of the Council unable to find accommodation.

Applications, on forms provided, must be returned by 10th October, 1959.

F. R. POOLEY,
County Architect.

County Offices,
Aylesbury.

5732

COUNTY BOROUGH OF SOUTHAMPTON
requires under N.I.C. conditions of service: **ASSISTANT ARCHITECT**, Special Scale, £785-£1,070. Applicants must have passed Parts I and II of the R.I.B.A. Final Examination and have had experience in housing design and construction and estate layout, preferably with a municipal authority.

Apply on application forms obtainable from the Borough Engineer and Surveyor, Civic Centre, Southampton, by not later than Monday, 28th September, 1959. 5616

BOROUGH OF WATFORD

APPOINTMENT OF ASSISTANT ARCHITECT

Applications are invited for the above post at a salary in accordance with Grade A.P.T. I (£810-£765).

Commencing salary will be according to qualifications and experience.

Housing accommodation available.

Applications to the undersigned by 22nd September, 1959.

F. C. SAGE,
Borough Surveyor and Architect.

Town Hall,
Watford.

5580

NEWCASTLE REGIONAL HOSPITAL BOARD REGIONAL ARCHITECT'S DEPARTMENT

During the next two years the Board plans to spend several millions on hospital developments and larger programmes are being planned to follow. The present building programme includes a wide variety of projects, ranging from houses to hospitals, and (since a large hospital resembles a small town) affords ample opportunity for gaining both general and hospital experience simultaneously.

The following posts in the Regional Architect's Department are open to applicants. The salary scales are at present under review and it is expected that they will very shortly be improved.

1. **ASSISTANT ARCHITECTS**. Salary £730

£25 (2) × £30 (2) × £35 (5) × £40 (1) - £1,056.

Applicants should be registered architects and have had experience of the planning and construction of public buildings. The commencing salary will be fixed within the Grade by reference to relevant experience and to age.

2. **ARCHITECTURAL ASSISTANTS**. Salary

£545 at age 21 × £20 (3) × £25 (4) × £30 (2)

to £765.

Applicants should have passed the Intermediate Examination of the R.I.B.A. or an examination recognised by the Institute as equivalent, and some practical experience is desirable.

The commencing salary within the grade will depend upon the applicant's age and practical experience, but will not exceed £605.

3. **ARCHITECTURAL DRAUGHTSMAN**, Salary £445 (at age 21: £20 shall be deducted for each year below that age) × £25 (5) × £30 (3) to £660.

Applicants should have had previous experience in an architect's drawing office and be neat and quick draughtsmen.

Evening study facilities are available at King's College of Durham University in Newcastle.

Applications, stating age, qualifications, past and present appointments, present salary and details of experience and training, together with the names of three referees (of whom at least two should be architects), should be forwarded to the Secretary to the Board, Benfield Road, Newcastle upon Tyne, 6, not later than 24th September, 1959. 5615

KENT COUNTY COUNCIL require:—

(a) **ASSISTANT ARCHITECT** capable of accepting responsibility and displaying initiative in the design and control of building projects and possessing experience and ability in current problems, design and control of costs. Candidates should be Associates of the Royal Institute of British Architects.

(b) **ASSISTANT QUANTITY SURVEYOR** with experience in the preparation of estimates, bills of quantities, final accounts for building projects and familiar with recent developments in cost analysis and cost planning. Candidates should have passed the Final Examination of the Royal Institution of Chartered Surveyors or hold a similar qualification.

Salaries within scale rising to £1,070. Commencing salary according to qualifications and experience. N.I.C. Conditions of Service. Further details and application forms from County Architect, Springfield, Maidstone. Closing date 30th September, 1959. 5631

CARSHALTON URBAN DISTRICT COUNCIL

Applications are invited for the appointment of **ARCHITECTURAL ASSISTANT** in the Engineer and Surveyor's Department. Salary within Special Scale (£785-£1,070). Plus London "weighting" allowance. Must hold Final Examination Certificate of the R.I.B.A. and be a Registered Architect. Must also be competent in design and construction and have had a full and varied practical experience, preferably in the architectural work of a local authority.

Carshalton is a large urban district of 62,000 population with a development programme which includes multi-storey flats and other building works.

Application forms, obtainable from the undersigned, to be returned with names of three referees not later than 2nd October, 1959.

C. H. DURRANT,
Clerk of the Council.

Council Offices,
The Grove,
Carshalton,
Surrey.

5605

NATIONAL COAL BOARD

EAST MIDLANDS DIVISION

Applications are invited for superannuable posts as ARCHITECTS, ARCHITECTURAL ASSISTANTS and a QUANTITY SURVEYOR on the staff of the Divisional Architect, 60, Lower Parliament Street, Nottingham.

The Superannuation rights under Local Authority and certain other schemes are transferable and the point of entry into the salary scales will be determined by qualification and experience.

S.V. 1004-ARCHITECTS, GRADE II (£815 x £30-£1,125).

Open to Corporate Members of the R.I.B.A. with wide practical experience.

S.V. 1005-ARCHITECTURAL ASSISTANTS (£715 x £25-£850) (exceptionally £1,000).

S.V. 1006-ARCHITECTURAL ASSISTANTS (£595 x £25-£710).

S.V. 1013-QUANTITY SURVEYOR, Grade II (£815 x £30-£1,125).

Applicants should preferably be members of the R.I.C.S. and have had considerable experience in all aspects of the work of a Quantity Surveyor's office.

The work of the department provides excellent experience in the design and construction of Welfare and Industrial Buildings, including Pithead Baths, Canteens, Medical Centres, large Workshops, Stores, Offices, etc.

Applications within 14 days, giving age and full details of qualifications and experience, present appointment and salary, should be addressed to the Divisional Chief Staff Officer, National Coal Board, East Midlands Division, Sherwood Lodge, Arnold, nr. Nottingham.

Please quote the appropriate reference. 5728

CITY ARCHITECT'S OFFICE, MANCHESTER

Applications are invited for the following appointments on the permanent staff:

1. DEPUTY CHIEF STRUCTURAL ENGINEER. Salary A.P.T. V (£1,220/£1,375 per annum). Candidates must be an A.M.I.Struct.E. or A.M.I.C.E., and have had at least five years' design experience since becoming an Associate member. Should also have a sound knowledge of design in reinforced concrete, steelwork and structural timber work, together with adequate knowledge of current by-laws and codes of practice.

2. SENIOR ASSISTANT ARCHITECT. Salary A.P.T. IV (£1,065/£1,220 per annum). Housing accommodation may be provided for a limited period. Removal expenses. Five-day week.

Application forms from City Architect, Town Hall, Manchester, 2. Returnable by 2nd October. 5725

SOUTH AUSTRALIAN SCHOOL OF MINES AND INDUSTRIES

NORTH TERRACE, ADELAIDE

Applications are invited for the position of LECTURER IN THE DEPARTMENT OF ARCHITECTURE

An applicant should hold a degree or diploma in Architecture and be a corporate member of an appropriate professional body. Previous experience as an architect is essential.

Normal salary range: £A1,650-£A1,870 per annum, commencing according to qualifications and experience. The upper limit of salary may be extended to £A2,050 per annum for a person holding an appropriate Honours Degree or its equivalent.

The successful applicant may be required to lecture and conduct classes in subjects of the Architectural, Town Planning, Building or Quantity Surveying Courses for which he is qualified, and to devote the whole of his time to the duties of his office.

The position carries liberal sick leave and superannuation benefits. Assistance will be provided for travelling expenses of the successful applicant and for transport of personal effects. Closing date 15th October, 1959.

Applications with supporting documents to: Agent General for South Australia, South Australia House, Marble Arch, W.I. 5727

COUNTY BOROUGH OF SOUTHAMPTON

BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the permanent position of ASSISTANT ARCHITECT, Special Grade (£785-£1,070). Applicants should be A.R.I.B.A. and should state housing needs and commencing salary required.

Experience in School major projects an advantage. Application forms from the Borough Architect, Civic Centre, Southampton, returnable by 3rd October, 1959. 5726

CITY AND COUNTY OF BRISTOL

APPOINTMENT OF PLANNING ASSISTANTS

Applications invited for above posts, Grade A.P.T. IV (£1,065/£1,220 p.a.) in City Engineer and Planning Officer's Department.

Applicants must have passed Final Examination of Town Planning or other approved Institute and have extensive planning experience, particularly in connection with preparation and administration of a Development Plan and preparation of layouts for redevelopment areas.

Housing needs of successful candidates and question of a contribution towards removal expenses will receive favourable consideration.

Applications, stating age, qualifications, experience, present and previous appointments with salaries and dates of appointment, together with two referees, to City Engineer and Planning Officer, Cabot House, Deanery Road, Bristol, 1, by 28th September. 5650

CITY OF COVENTRY ARCHITECTURAL & PLANNING DEPARTMENT

GROUP PLANNING OFFICER, £1,220-£1,375

CENTRAL AREA RECONSTRUCTION

An imaginative designer is required to lead City Centre Reconstruction Team. Considerable areas yet to be designed in detail and post offers unique opportunity for creative city planning.

Housing accommodation in approved cases: removal expenses loan available. Five-day working week. Application forms from Bull Yard, Coventry, returnable 30th September, 1959. 5641

NORTH RIDING OF YORKSHIRE COUNTY COUNCIL

CHIEF PLANNING ASSISTANT within A.P.T. Grades IV and V (£1,025-£1,325).

New appointment as the senior assistant in the headquarters section of the planning office. This senior appointment will afford considerable scope for a planner of experience and initiative interested in positive planning. Duties will include the review of the County Development Plan, including the preparation and review of town maps, the preparation of redevelopment schemes and village development control maps, special duties in relation to the North York Moors National Park and the North Riding part of the Yorkshire Dales National Park.

Associate Membership of the Town Planning Institute essential; architectural qualification an advantage. Candidates must disclose in writing relationship to any member or senior officer of the County Council. Canvassing disqualifies.

Applications, giving age and experience, with names and addresses of three referees, to the Clerk of the County Council, County Hall, Northallerton, by 30th September, 1959. 5640

DRAGHTSMAN required by GOVERNMENT OF BECHUANALAND P.W.D. on probation for pensionable establishment. Normal tour 24/30 months. Salary according to experience in scale £625 rising to £975 a year. Additional allowances £157/£211 (married men) or £78/£105 (single men). Free passages. Liberal leave on full salary. Quarters at moderate rental. Allowances £120-£288 for children under 18 years, educated outside of Protectorate. Candidates must be under 45 years of age and should have had all round experience in an architect's office on general buildings. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience, and quote M2B/50752/AG. 5661

CITY OF BIRMINGHAM EDUCATION COMMITTEE

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Principal: J. C. MARTIN, M.A., A.M.I.E.E., A.M.B.R.I.T.I.E.

Applications are invited for appointment as ASSISTANT TEACHER in the Science and Building Department. The post will be Grade "A" or "B" according to the qualifications and experience of the successful applicant.

The person appointed will be required to teach various subjects up to S.5 standard mainly in the Professional Building Courses (Civil and Municipal Engineering, R.I.C.S., Public Health Inspectors and Institute of Housing), and it is desirable that he should be able to take up the appointment as soon as possible.

Applicants should possess a minimum qualification of Higher National Certificate in Building (either General Building or Quantity Surveying Sections) and should have had appropriate industrial experience.

Salary in accordance with the Burnham Technical Scale: Grade "A," £498 15s. x £26 5s. to £945. Grade "B," £382 10s. x £25 5s. to £1,075 5s., plus additions and allowances as appropriate. There will be an upwards revision of the above scales on the 1st October, 1959.

Application forms and further particulars may be obtained from the Principal to whom the completed forms should be returned as soon as possible.

E. L. RUSSELL,

Chief Education Officer.

5658

COUNTY BOROUGH OF SOUTHAMPTON

BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the following permanent posts:-

(a) ASSISTANT PLANNING OFFICER (Development Control), Special Grade (£785-£1,070), to assist with Development Control, examining applications, site inspections, interviews with applicants, preparation of reports.

(b) PLANNING ASSISTANT, Grade A.P.T. II (£765-£830) for Survey, Development Plan Review, Redevelopment Areas and Compulsory Purchase Orders.

Candidates for the above posts should possess appropriate qualifications.

(c) PLANNING ASSISTANT (LANDSCAPE). Grade A.P.T. I (£610-£765).

Applicants should possess a qualification in Landscape Architecture, experience of planting design and tree preservation orders an advantage.

Application forms from the Borough Architect, Civic Centre, Southampton, to be returned by 30th September, 1959. 5657

EBBW VALE URBAN DISTRICT COUNCIL

APPOINTMENT OF TEMPORARY ASSISTANT ARCHITECT

Applications are invited from Registered Architects, preferably Corporate Members of the R.I.B.A., for the above appointment in the Architect's Department.

The salary will be in accordance with the Special Grade, £785-£1,070, commencing at a point within the grade in accordance with the experience of the successful applicant.

The person appointed will be engaged mainly upon duties in connection with the scheme for the development of the new Civic Centre for a minimum period of three years.

The appointment will be subject to three months' notice in writing on either side and to the successful candidate passing a medical examination.

The Council will provide housing accommodation if required.

Further details and forms of application may be obtained from the undersigned, and forms of application must be returned so as to reach him not later than the 26th September, 1959.

HOWARD J. WILLIAMS,

Clerk of the Council.

Council Offices, Ebbw Vale, Mon. 5649

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METROPOLITAN BOROUGH OF SOUTH-WARK
Applications are invited for the following appointments to the Borough Engineer and Surveyor's Department:—

(a) **ARCHITECTURAL ASSISTANT, A.P.T. IV** (£1,095 to £1,250) or **A.P.T. V** (£1,250 to £1,405). Candidates must be Associates of the Royal Institute of British Architects and well experienced and able to take charge of design group concerned with a large programme of mixed housing development and possibly other schemes.

(b) **ARCHITECTURAL ASSISTANTS, A.P.T. I** (£640 to £795) or **A.P.T. II** (£795 to £910). Vacancies in design groups dealing with mixed housing and other development. Applicants should possess Intermediate R.I.B.A. for A.P.T. II.

If under 26 years of age the salaries will be £10 per annum less.

The Council has a large programme of housing development on sites already available, or scheduled for clearance within the next ten years. In addition, a number of public building projects are envisaged, including new public baths within the Elephant and Castle Development Area.

Applicants are requested to attach to their application forms brief details of their experience, particularly under the following headings:

- (a) Housing schemes;
- (b) Public buildings;
- (c) Other buildings;
- (d) Other organisations;
- (e) Site supervision.

The appointments are subject to the Council's Conditions of Service of Officers. Medical examination. No housing provided. Canvassing will disqualify.

Further details and application forms are obtainable from the undersigned and must be returned by first post on 28th September, 1959. Please indicate clearly the post and grade applied for.

E. J. PITT,
Town Clerk.

Southwark Town Hall,
Walworth Road, S.E.17. 5667

LANCASHIRE COUNTY COUNCIL
Applications are invited from qualified ARCHITECTS of initiative, keen on design and modern constructional methods, to work on a large and varied programme.

Permanent posts in Special Class Scale (£785-£1,070). Starting post according to experience. Application forms from the County Architect, P.O. Box 26, County Hall, Preston, to be returned by the 5th October, 1959, quoting reference A/AJ. 5716

COUNTY BOROUGH OF STOCKPORT
QUANTITY SURVEYOR required BOROUGH ARCHITECT'S DEPARTMENT. Salary £1,065-£1,220 (A.P.T. IV) commencing according to age, qualifications and experience. Varied and large scale building programme. The Corporation have a scheme for advancing, in approved cases, loans for house purchase up to 100 per cent. Applications, stating age, qualifications, experience, two referees, and if related to any member/senior officer of Council, to Borough Architect, Town Hall, Stockport, by 2nd October, 1959. Canvassing disqualifies. Post pensionable, subject to medical examination. 5660

Bournemouth Education Committee
COLLEGE OF ART

Principal: FREDERIC E. COURTNEY.
Applications are invited for the post of ASSISTANT in the Department of Architecture of the Bournemouth College of Art, to begin as soon as possible. Salary in accordance with Burnham Scale. Grade B, £700 x £27 10s. to £1,150, plus allowances for Degree or equivalent, training, etc. Details and application forms from W. R. Smedley, B.Sc., Chief Education Officer, Town Hall, Bournemouth. 5648

BASILDON DEVELOPMENT CORPORATION
LANDSCAPE ASSISTANT (Associate or Student I.L.A.) required in Department of Architecture and Planning to work in association with the Consultant, Miss Sylvia Crowe, P.P.I.L.A., on all landscape projects for Basildon New Town. Salary within Grades A.P.T. I/II, £610-£880 according to ability.

Applications, stating age, experience and qualifications, to be returned to the General Manager, Basildon Development Corporation, Gifford House, Basildon, Essex, by 25th September, 1959. Please quote Ref. No. GM.6560. 5676

COUNTY BOROUGH OF CARLISLE
Applications are invited for the appointment of ASSISTANT ARCHITECT in the City Surveyor's Department at a salary in accordance with the A.P.T. Special Scale, £785-£1,070.

Starting salary according to qualifications and experience. Applicants should be A.R.I.B.A. This post is in a section normally carrying out general work, but at present educational work is also being done.

The office is sectionalised, the architectural work being under the immediate control of the Deputy City Architect.

Forms of application from City Surveyor, 18, Fisher Street, Carlisle, returnable to him not later than 30th September, 1959.

H. D. A. ROBERTSON,
Town Clerk. 5700

RADNORSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT
Applications are invited for the appointment of a QUALIFIED QUANTITY SURVEYOR (must be A.R.I.C.S.). Salary Grade A.P.T. IV (£1,065-£1,220). Required for preparation of Bills of Quantities, Estimates and Schemes, and Direct Labour Costing.

The appointment will be terminable by one month's notice in writing on either side and will be subject to the provisions of the Local Government Superannuation Acts and to the passing of a medical examination.

The Conditions of Service will be those of the National Joint Council for Local Authorities' Administrative, etc., Services. Travelling allowance on County Scale.

Applications, stating age, qualifications and experience, with the names of two referees, must be received by the undersigned not later than 30th September, 1959.

D. C. S. LANE,
Clerk of the Council.

County Hall,
Llandrindod Wells,
Radnorshire. 5669

CITY OF BATH
Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT at a salary within the Special Grade (£750-£1,030 per annum). Applicants should have passed Parts I and II of the R.I.B.A. Final Examination. The programme of building works is extensive and interesting and the appointment affords an opportunity for good experience.

The Council is prepared to provide housing accommodation if required.

Applications, giving details of age, experience and qualifications, together with the names and addresses of three referees, should be addressed to the City Planning Officer and Architect, 7, North Parade Buildings, Bath. The last day for the receipt of applications is Saturday, 26th September, 1959.

JARED E. DIXON,
Town Clerk.

Guildhall,
Bath. 5677

BOROUGH OF BECCLES
TEMPORARY ARCHITECTURAL ASSISTANT
Applications are invited for the above position. The appointment is for a period of 12 months and for work on housing development. Salary within A.P.T. Grade IV (£1,065-£1,220 p.a.).

Applications, stating age, experience and qualifications, should reach me by Saturday, 3rd October, 1959.

F. W. LEAH,
Town Clerk. 5688

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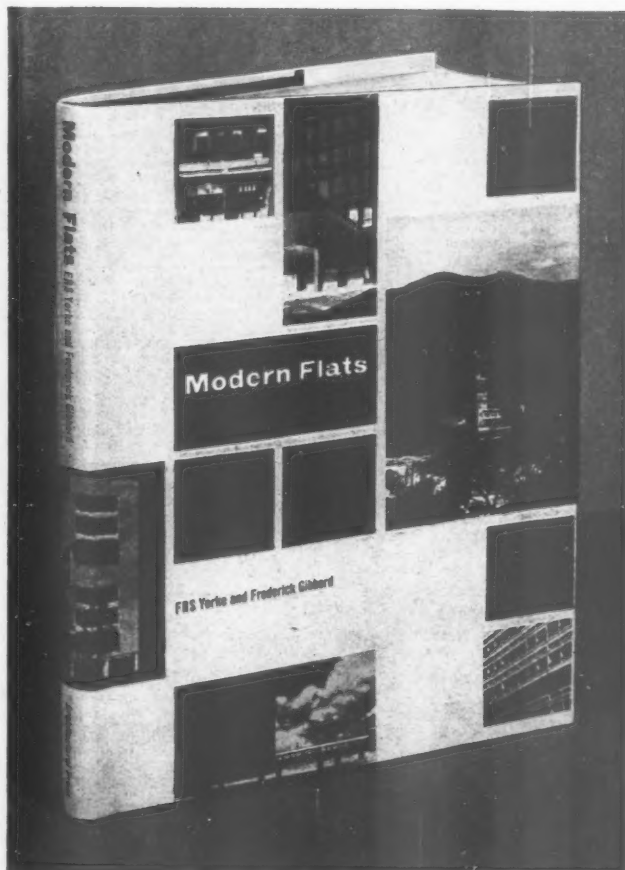
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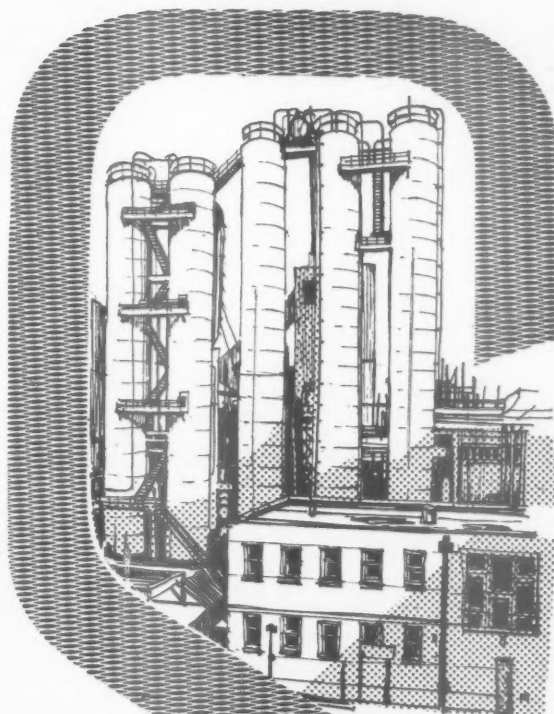
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ASSISTANT ARCHITECTS required by PERTH AND KINROSS COUNTY COUNCIL—on Scale £795-£1,075 for work on County Offices Extension and Schools. Applicants should have passed the final examination (all parts) of the R.I.B.A., but consideration will be given to applicants holding a Diploma in Architecture. Placing on scale may be given according to experience. Houses available. Particulars of appointment and forms of application from the County Clerk, P.O. Box 15, County Offices, York Place, Perth. Applications to be lodged by 3rd October, 1959. 5751

CITY OF BIRMINGHAM

ASSISTANT ARCHITECTS and ARCHITECTURAL ASSISTANTS are required in the City Architect's Department for the design of new Civic Buildings, Schools, Technical Colleges, etc., and Housing Schemes (including tall blocks of flats), Shopping Centres, etc. Commencing salaries will be within the following Scales according to capabilities and experience:—

(a) **ASSISTANT ARCHITECTS**—Special Scale (£785-£1,070)

(b) **ARCHITECTURAL ASSISTANTS** — S.C. A.P.T. I (£630-£785).

Applicants should have passed Parts I and II Final R.I.B.A. for posts (a) and Intermediate R.I.B.A. for posts (b) or hold equivalent qualifications.

Pension scheme. Five-day week. Medical examination. Applications, stating age, present position and salary, qualifications, experience and two referees, to the undersigned by 2nd October, 1959.

A. G. SHEPPARD FIDLER,
City Architect.

Civic Centre,
Birmingham, 1. 5735

CITY OF MANCHESTER

CHIEF ASSISTANT PLANNING OFFICER required in the City Surveyor and Engineer's Department at a salary within J.N.C. Scale "C" (£1,385-£1,620).

Candidates must be appropriately qualified by examination and must have had considerable experience in the Planning and Development work of a local authority.

This appointment offers practical experience on large scale projects, many of which are due to be carried out very shortly. Housing accommodation and removal expenses.

Applications, stating age, education, qualifications and experience, together with the names of three referees, to the Town Clerk, Town Hall, Manchester, 2, in an envelope endorsed "Chief Assistant Planning Officer," not later than 12th October, 1959. 5733

EAST SUFFOLK COUNTY COUNCIL

Vacancies exist in the County Architect's Department for two **SENIOR ASSISTANT ARCHITECTS** on A.P.T. Grade V (£1,220-£1,375).

Applicants must be qualified architects with good general experience in design and construction, capable of taking charge of large projects with the minimum of supervision.

The starting salary in each case will be fixed according to qualifications and experience. Housing accommodation is not provided, but where a successful applicant is transferring from another local authority, removal expenses will be paid, together with a settling in allowance of £25. In addition, the County Council are prepared to grant loans for the purchase of houses in approved cases.

The posts offer interesting and responsible work in connection with an extensive programme of educational and other public buildings.

The appointments are subject to the provisions of the Superannuation Acts and the selected candidates will be required to pass a medical examination.

Applications, stating age, qualifications, experience and present employment, together with copies of two recent testimonials, must be delivered to the County Architect, Mr. E. J. Candlish, A.R.I.B.A., County Hall, Ipswich, by Wednesday, 30th September, 1959. 5734

**COUNTY BOROUGH OF BARROW-IN-FURNESS.
BOROUGH ENGINEER AND SURVEYOR'S
DEPARTMENT
SENIOR ARCHITECT**

Applications are invited from qualified Architects with suitable experience for the post of: Senior Architect, Grade 4 (£1,065-£1,220). The commencing salary will be fixed within the grade.

Housing accommodation may be provided if required. The Department works a five-day week. Full details of the post, conditions of appointment and application forms, may be obtained from the Borough Engineer and Surveyor, to whom completed forms must be returned not later than Monday, 5th October, 1959.

LAWRENCE ALLEN,
Town Clerk.

Town Hall,
Barrow-in-Furness. 5682

LONDON COUNTY COUNCIL

ARCHITECTURAL ASSISTANTS required up to £895. Full and interesting programme of houses, flats, schools and general buildings. Application form and particulars from Hubert Bennett, F.R.I.B.A., Architect to Council, AR/EK/43/59, County Hall, S.E.1. (923.) 5052

**UNIVERSITY OF QUEENSLAND
LECTURER IN ARCHITECTURE**

Applications are invited for the above position. Applicants should have a Degree or Diploma of a recognised school of Architecture, Associate Membership of the Royal Australian Institute of Architects or the Royal Institute of British Architects. Practical and/or teaching experience is most desirable. Teaching duties will involve lecturing and drawing office work with second year degree students in particular.

Salary range £1,540/£2,040 per annum. Further particulars and application forms are obtainable from the Secretary, Association of Universities of the British Commonwealth, 36, Gordon Square, London, W.C.1.

Applications close in Australia and London on 31st October, 1959. 5742

LONDON COUNTY COUNCIL

FURNITURE DESIGNERS required in architect's department, London County Council. Large programme of new buildings including schools, hostels, homes for aged, homes for children, and first-class designers required.

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H. A. HALPERN & ASSOCIATES require immediately **ASSISTANT** for their London Office. Intermediate standard and must have at least three years' office experience and a good knowledge of building construction. Apply, stating experience and salary required, to H. A. Halpern & Associates, Cumberland Chambers, 7, Edgware Road, Marble Arch, London, W.2. Tel.: AM Bassador 2471. 5636

ARCHITECTURAL STAFF urgently required in all Grades, salary range £500-£1,000. Write Morgan and Carn, A./A.R.I.B.A., 12, Grand Avenue, Hove 3, Sussex. 5566

ARCHITECTURAL ASSISTANTS (Intermediate and Senior) required in busy rural practice: Hospitals, Housing, Schools and general type of work. Salary according to experience and ability. Apply with details of experience, etc., to W. & M. Given, Architects & Consulting Engineers, Coleraine, Northern Ireland. 5706

UNITY STRUCTURES LTD. have vacancies in their London Office for **ARCHITECTS**, preferably experienced in site development and domestic architecture. Applications giving particulars of experience and salary required, should be made in writing to the Secretary, Unity Structures Ltd., 5-15, Cromer Street, London, W.C.1. 5642

ARCHITECTURAL ASSISTANT of Intermediate standard required for our Lowestoft Office. Reply in writing giving full particulars of experience and salary required. Piper & Whalley, A.R.I.C.S./A.R.I.B.A., Architects & Surveyors, 1, Regent Road, Lowestoft. 5644

SENIOR ASSISTANT required immediately. Good salary, prospects and working conditions. Small Office, general practice. Apply to Herbert J. Stribling, F.R.I.B.A., 26, Bath Road, Slough, Bucks. Telephone 22071. 5645

ARCHITECTURAL ASSISTANT (Intermediate standard) with particular interest in modern design and detailing wanted in office of architect concerned with shops and shop buildings, West End. Salary £600-£700, depending on experience. 5646

QUALIFIED SENIOR ARCHITECTURAL ASSISTANT required to take schemes from draft layout to completion, also **ASSISTANT** of Intermediate standard to work under supervision. Staff Restaurant, Sports and Social Club. Superannuation Fund. Apply in writing, stating age, experience and salary required, to the Employment Officer, W. H. Smith & Son, Ltd., Strand House, Portugal Street, W.C.2. 5647

TOOLEY AND FOSTER require a **JUNIOR ARCHITECTURAL ASSISTANT** of about Intermediate standard for interesting and varied general work with opportunities for taking responsibility.

Salary will be according to age and length and type of experience. Five-day week, voluntary superannuation scheme. Apply by letter only to Midland Bank Chambers, Buckhurst Hill, Essex. 5651

MORRISON AND PARTNERS require a **SENIOR ASSISTANT** for their Sheffield Office. Applicants must be qualified and capable of handling large projects at all stages. This is a small office where enthusiasm and interest in architecture are appreciated. Salary up to £1,200 per annum, according to experience and ability. Apply to: 15, Northumberland Road, Sheffield, 10. 5652

JERSEY, CHANNEL ISLANDS office requires an A.R.I.B.A. with at least 5 years' experience. Write giving particulars, salary required etc., to A. Le Sueur, A.R.I.B.A., 6, York Street Chambers, Jersey, C.I. 5655

A.R.I.B.A. and **SENIOR** and **JUNIOR ASSISTANTS** required by West London Group of Companies for work on varied and widely situated property development. Permanent progressive appointments subject to Company's Pension Scheme. Full particulars and salary required to Box 5655.

ARCHITECTURAL ASSISTANT, male or female, required for the Birmingham Branch Office of a large industrial concern. Applicants should be of Intermediate standard, capable of working independently. High standard of presentation is required. Good salary and full range of employee benefits. Write giving full details of age, experience and salary required to Box 5656.

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COMPETENT and energetic qualified ARCHITECTURAL ASSISTANTS required, able to combine accuracy with commonsense. Contributory pension scheme in operation. Apply W. H. Watkins, Gray and Partners, Architects and Surveyors, 1, Clare Street, Bristol, 1. Tele.: Bristol 20491. 5625

INTERMEDIATE/FINAL ASSISTANT wanted at once. Good draughtsman and sound knowledge construction essential. Five-day week, salary according to experience. Ring AMB. 7771 for appointment or write brief details to Musman & Cousins, 12, Upper Berkeley Street, W.1. 5627

A QUALIFIED SENIOR ASSISTANT required. Also vacancy for an INTERMEDIATE ASSISTANT. Established office with wide range of work in London and Home Counties, including Industrial, Medical, Domestic and Commercial. 5-day week, 3 weeks annual leave. Write giving full details of training, experience and salary required to J. William Palmer and Partners, Chartered Architects, 2, The Town, Enfield, Middlesex. 5637

ARCHITECTURAL ASSISTANT, pre-Intermediate standard, required to work with small design group on commercial projects. Apply to the Architect, Brixton Development Co. Ltd., 22-24, Ely Place, London, E.C.1. CHANCERY 5141. 5628

ASSISTANTS required, Intermediate standard, for interesting Commercial and Industrial work. Salary commensurate with ability and enthusiasm. Good office conditions, lunch facilities. Apply in writing to Alan E. Briggs, F.R.I.B.A., 10, Fleet Street, London, E.C.4. 5629

ASSISTANT—Intermediate to Final—required for country practice, salary according to experience. Write, with experience, age and salary, to Forsyth Lawson, Cunningham and Partners, Banbury. 5630

SEELY AND PAGET require experienced and responsible ASSISTANT for Training Colleges and other varied work. Intermediate to Final standard preferred. Salary by arrangement. Write: 41, Coth Fair, E.C.1, or telephone—MET. 8511. 5635

CROYDON—ASSISTANT of Intermediate standard required in Architect's office. Varied work and good prospects. Apply in writing, giving all particulars to George Lowe & Partner, 6, High Street, Croydon. 4527

LEWELLYN SMITH AND WATERS require Senior and Junior ASSISTANTS for a widely varied programme of work. Salary according to experience. Please write stating qualifications, experience and age to 103, Old Brompton Road, S.W.7. 4622

ASSISTANTS of Intermediate and Final standard are required in the office of Architects practising in the West End, London. Excellent opportunities occur for those wishing to improve their positions. Applicants should be capable of preparing working drawings and details, largely on their own initiative. Five-day week, salary with bonus according to capabilities. Write Box 4947. 5647

ERIC FIRMIN & PARTNERS require ASSISTANTS for interesting work on industrial and commercial projects. Five-day week. Luncheon vouchers. Salary according to experience. Please apply 5, Holborn Circus, CITY 8811. 5560

PATRICK GWYNNE requires an ASSISTANT (male or female) to work personally with him on private houses and interior design. Must be thoroughly experienced and capable of first class detail drawing. Knowledge of furniture and furnishings would be useful. The Homewood, Boker, Surrey. 5383

REQUIRED in Oxford office of W. H. Watkins, Gray & Partners, ASSISTANT to work on advanced Technical Laboratory. Apply in writing to 57, Catherine Place, S.W.1, or ring for appointment Vic 7761. 3955

EXPERIENCED ARCHITECTURAL ASSISTANTS required, one Qualified and one of at least Intermediate standard, for Branch Office, Birmingham, engaged on a varied and interesting programme of Commercial projects. The positions are pensionable and a five-day week is in operation. Applications, giving full particulars, to G. S. Hay, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 1, Balloon Street, Manchester, 4. 4307

SEVERAL Senior and Intermediate ARCHITECTURAL ASSISTANTS are required for commercial projects including Hotel, Theatre and extensive development schemes of offices and light industry, etc., in London Architect's office. Holiday arrangements will be recognized. Five-day week. Salary according to experience. Telephone City 8811. 4151

ARCHITECTURAL ASSISTANT, London. Final standard. Industrial and commercial. Progressive and interesting. Salary according to experience and ability. Box 4329. 5648

SOUTH KENSINGTON Architects' Office require experienced Intermediate ASSISTANT with good ability in design. Apply: R. Mountford Pigott & Partners, Kensington 1342. 4448

ARCHITECTURAL ASSISTANT, Intermediate standard. Busy London office. Good prospects. Box 4330. 5649

ASSISTANT required, Final standard. Salary approximately £1,000 per annum. Offices in Stroud, Dursley, and site office in Bristol. Write, giving details of qualifications and experience, to Ellery Anderson, Boiser & Falconer, Imperial House, Stroud, Gloucestershire. 4166

ARCHITECTURAL ASSISTANT required from about Intermediate standard to recently qualified, for interesting and varied work in practice mainly concerned with commercial projects. Five-day week. Congenial working conditions. Salary by arrangement. Apply in writing giving full particulars, age, to J. Alfred Harper & Son, Union Chambers, 63, Temple Row, Birmingham. 5629

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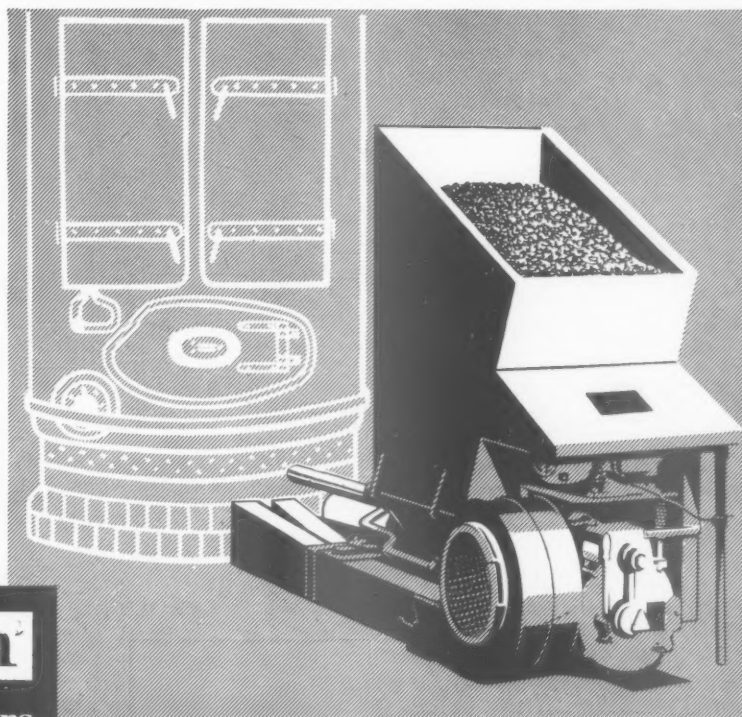
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